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NEWS 13 MAY 08 CA/CAplus Indian patent publication number format defined
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NEWS 19 JUN 18 CA/CAplus to be enhanced with pre-1967 CAS Registry Numbers

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DICTIONARY FILE UPDATES: 18 JUN 2007 HIGHEST RN 937778-45-5

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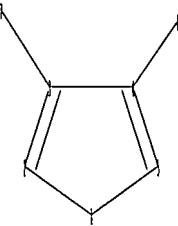
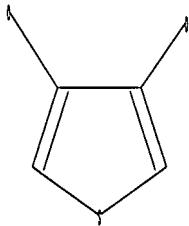
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=>
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chain nodes :

6 7

ring nodes :

1 2 3 4 5

chain bonds :

3-7 4-6

ring bonds :

1-2 1-5 2-3 3-4 4-5

exact/norm bonds :

1-2 1-5 2-3 3-4 3-7 4-5 4-6

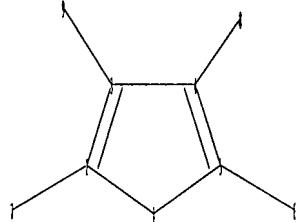
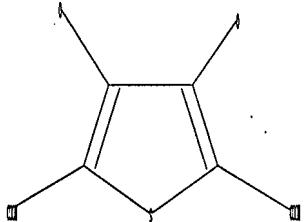
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS

Page 3

L1 STRUCTURE UPLOADED

=>
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chain nodes :
6 7 8 9
ring nodes :
1 2 3 4 5
chain bonds :
2-7 3-9 4-8 5-6
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 2-3 3-4 3-9 4-5 4-6 4-8
exact bonds :
2-7 5-6

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS

L2 STRUCTURE UPLOADED

=> l1 full
FULL SEARCH INITIATED 11:13:57 FILE 'REGISTRY'
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100.0% PROCESSED 32001 ITERATIONS 1046 ANSWERS
SEARCH TIME: 00.00.01

L3 1046 SEA SSS FUL L1

=> l2 full
FULL SEARCH INITIATED 11:14:00 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 42 TO ITERATE

100.0% PROCESSED 42 ITERATIONS 20 ANSWERS
SEARCH TIME: 00.00.01

L4 20 SEA SSS FUL L2

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COST IN U.S. DOLLARS SINCE FILE TOTAL
FULL ESTIMATED COST ENTRY SESSION
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FILE 'CAPLUS' ENTERED AT 11:14:06 ON 19 JUN 2007

10538995.trn

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=> 13 and 14
392 L3
33 L4
L5 33 L3 AND L4

=> d ibib abs hitstr 1-33

LS ANSWER 1 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2006:236715 CAPLUS
 DOCUMENT NUMBER: 144:321607
 TITLE: Green electrochromic material and device
 INVENTOR(S): Liu, Lu; Xu, Chunye; Taya, Minoru; Ning, Dai; Kaneko, Calen
 PATENT ASSIGNEE(S): University of Washington, USA
 SOURCE: PCT Int. Appl., 30 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

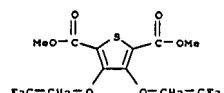
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WO 2006029344	A2	20060316	WO 2005-US32211	20050909
WO 2006029344	A3	20070405		
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RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
EP 1784686	A2	20070516	EP 2005-796579	20050909
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
PRIORITY APPN. INFO.:	US 2004-608438P	P	20040909	
	WO 2005-US32211	W	20050909	

AB Three green electrochromic (EC) materials based on thiophene, and a green EC material based on pyrazine are disclosed. A first thiophene derivative (2,3-di-thiophen-2-yl-thieno[3,4-b]pyrazine), which was previously investigated as a nonlinear optical material, is here disclosed for its use as an EC material, and for its incorporation into an EC device. Synthesis of two new thiophene derivs. (2,5-di(thieno-2-yl)-3,4-di(2,2,2-trifluoro-ethoxy)-thiophene and 2,5-(2,3-dihydro-thieno[3,4-b]1,4-dioxin-5-yl)-3,4-di(2,2,2-trifluoro-ethoxy)-thiophene and a new pyrazine derivative (2,3-dibenzo-5,7-di(thieno-2-yl)thieno[3,4-b]pyrazine) are also disclosed, since these materials are all able to selectively change to a green color state, and can be polymerized to achieve a green EC polymer.

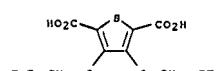
IT 879365-98-7P 879365-99-8P 879366-00-4P
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

LS ANSWER 1 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

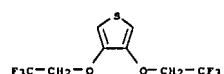
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 IT 879366-03-7P 879366-04-8P 879366-05-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of green electrochromic material and device)
 RN 879366-03-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(2,2,2-trifluoroethoxy)-, dimethyl ester (9CI) (CA INDEX NAME)



RN 879366-04-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(2,2,2-trifluoroethoxy)- (9CI)
 ICA INDEX NAME

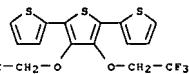


RN 879366-05-9 CAPLUS
 CN Thiophene, 3,4-bis(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)

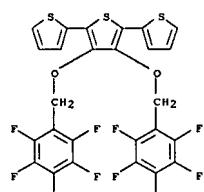


RN 879366-06-0 CAPLUS
 CN Thiophene, 2,5-dibromo-3,4-bis(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)

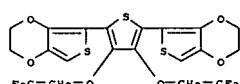
LS ANSWER 1 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 (green electrochromic material and device)
 RN 879365-98-7 CAPLUS
 CN 2,2':5',2''-Terthiophene, 3',4'-bis(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)



RN 879365-99-8 CAPLUS
 CN 2,2':5',2''-Terthiophene, 3',4'-bis((pentafluorophenyl)methoxy)- (9CI) (CA INDEX NAME)

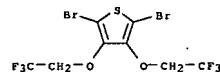


RN 879366-00-4 CAPLUS
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(3,4-bis(2,2,2-trifluoroethoxy)-2,5-thiophenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)



IT 58416-04-9
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of green electrochromic material and device)
 RN 58416-04-9 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester (6CI, 9CI) (CA INDEX NAME)

LS ANSWER 1 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



L5 ANSWER 2 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1281732 CAPLUS

DOCUMENT NUMBER: 144:70210

TITLE: Preparation of thiophene and polythiophene
INVENTOR(S): Xu, Liangheng; Li, Xiang; Wang, Qunying; Gao, Yun
PATENT ASSIGNEE(S): Peop. Rep. China
SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 13 pp.
CODEN: CNXKEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1616454	A	20050518	CN 2004-10066866	20040929
PRIORITY APPLN. INFO.:		CN 2004-10066866 20040929		

OTHER SOURCE(S): MARPAT 144:70210

AB A process for preparing high purity thiophene at high yield is by catalytic or thermal decarboxylation, with copper and/or chromium salt or oxide as the catalyst, in polar solvent such as sulfolane and PEG. Polythiophene is prepared by polymerizing thiophene in the presence of oxidant and anionic polyelectrolyte at 0-50° for 5-30 h at a pH of 1.0-3.0.

Polythiophene are useful as transparent conductive film for through-hole circuit board and electroluminescent display device.

IT 51792-34-8P 120326-42-3P, Poly(3,5-dimethoxy-2,5-

thiophenediyl) 121912-91-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation of thiophene and polythiophene)

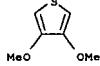
RN 51792-34-8 CAPLUS

CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

L5 ANSWER 2 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

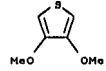
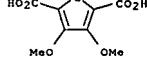
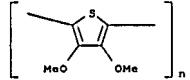
CN Thiophene, 3,4-dimethoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 51792-34-8
CMF C6 H8 O2 SIT 177364-96-4
RL: RCT (Reactant); RACT (Reactant or reagent) (preparation of thiophene and polythiophene)

RN 177364-96-4 CAPLUS

CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)

RN 120326-42-3 CAPLUS
CN Poly(3,5-dimethoxy-2,5-thiophenediyl) (9CI) (CA INDEX NAME)

RN 121912-91-2 CAPLUS

L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:864059 CAPLUS

DOCUMENT NUMBER: 142:38039

TITLE: Synthesis and crystal structures of 21,3,12,13-tetraalkoxy-21,23-dithiaphorphyrins and 21,3-dialkoxy-21-monothiaphorphyrins

AUTHOR(S): Agarwal, Neeraj; Hung, C.-H.; Ravikanth,

Mangalampalli, Department of Chemistry, Indian Institute of Technology, Powai, Mumbai, 400076, India

SOURCE: Tetrahedron (2004), 60(47), 10671-10680

CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:38039

AB The tetraalkoxy and dialkoxy substituted 21,23-dithiaphorphyrins and 21-monothiaphorphyrins, resp., having methoxy, butoxy, octyloxy and dodecyloxy substituents at β -thiophene carbons were synthesized and characterized. The X-ray structure was solved for the tetrabutoxy substituted 21,23-dithiaphorphyrin and it exhibited a more planar structure

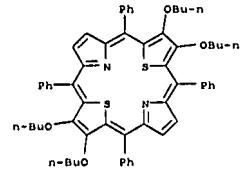
compared with unsubstituted 52TPP, whereas the dimethoxy substituted 21-monothiaphorphyrin showed a saddle shaped structure similar to unsubstituted 52TPH.

IT 496800-78-3P 807334-69-6P

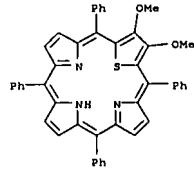
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (synthesis and crystal structure of tetraalkoxy-dithiaphorphyrins and dialkoxy-monothiaphorphyrins)

RN 496800-78-3 CAPLUS

CN 21,23-Dithia-22,24-diazapentacyclo[16.2.1.13,6.18,11.113,16]tetracosa-1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 9,10,19,20-tetrabutoxy-2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)

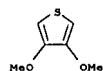
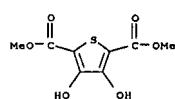
RN 807334-69-6 CAPLUS
CN 21-Thia-22,23,24-triazapentacyclo[16.2.1.13,6.18,11.113,16]tetracosa-1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 9,10,19,20-dimethoxy-2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)

L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

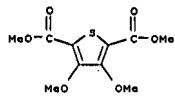
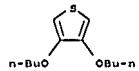
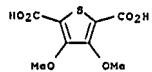
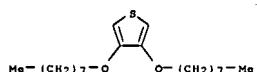
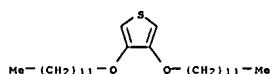
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126673-34-5P 177364-96-4P 207802-19-5P
496800-96-5P 496801-01-5P 496801-09-3P
496801-13-9P 496801-18-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (synthesis of tetraalkoxy-dithiaphorphyrins and dialkoxy-monothiaphorphyrins)

RN 51792-34-8 CAPLUS

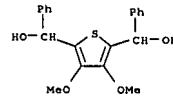
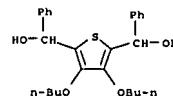
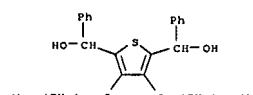
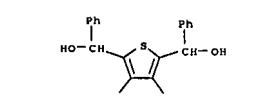
CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

RN 108199-25-3 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-dimethyl ester, sodium salt (1:2) (CA INDEX NAME)RN 118851-98-2 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, dimethyl ester (9CI) (CA INDEX NAME)

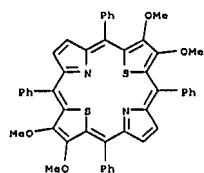
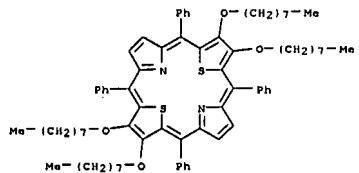
L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

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CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)RN 207802-19-5 CAPLUS
CN Thiophene, 3,4-bis(octyloxy)- (9CI) (CA INDEX NAME)RN 496800-96-5 CAPLUS
CN Thiophene, 3,4-bis(dodecyloxy)- (9CI) (CA INDEX NAME)

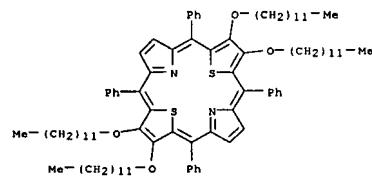
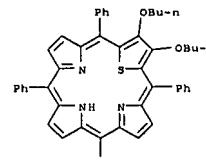
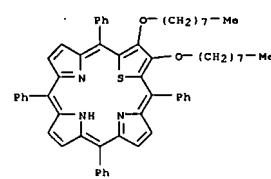
RN 496801-01-5 CAPLUS

L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 2,5-Thiophenedimethanol, 3,4-dimethoxy-α,α'-diphenyl- (9CI)
(CA INDEX NAME)RN 496801-09-3 CAPLUS
CN 2,5-Thiophenedimethanol, 3,4-dibutoxy-α,α'-diphenyl- (9CI)
(CA INDEX NAME)RN 496801-13-9 CAPLUS
CN 2,5-Thiophenedimethanol, 3,4-bis(octyloxy)-α,α'-diphenyl- (9CI)
(CA INDEX NAME)RN 496801-18-4 CAPLUS
CN 2,5-Thiophenedimethanol, 3,4-bis(dodecyloxy)-α,α'-diphenyl- (9CI)
(CA INDEX NAME)

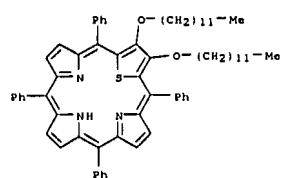
L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

IT 496800-70-5P 496800-81-8P 496800-86-3P
807334-70-9P 807334-71-0P 807334-72-1P
807334-73-2P 807334-74-3P 807334-75-4P
807334-76-5PRLI BPN (Synthetic preparation); PREP (Preparation)
(synthesis of tetraalkoxy-dithiaporphyrins and dialkoxy-
monothiaporphyrins)
RN 496800-70-5 CAPLUS
CN 21,23-Dithia-22,24-diazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 9,10,19,20-tetramethoxy-
2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)RN 496800-81-8 CAPLUS
CN 21,23-Dithia-22,24-diazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 9,10,19,20-
tetraakis(octyloxy)-2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)RN 496800-96-3 CAPLUS
CN 21,23-Dithia-22,24-diazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 9,10,19,20-
tetraakis(dodecyloxy)-2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)

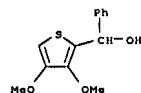
L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 807334-70-9 CAPLUS
CN 21-Thia-22,23,24-triazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 19,20-dibutoxy-2,7,12,17-
tetraphenyl- (9CI) (CA INDEX NAME)RN 807334-71-0 CAPLUS
CN 21-Thia-22,23,24-triazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 19,20-bis(octyloxy)-
2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)RN 807334-72-1 CAPLUS
CN 21-Thia-22,23,24-triazapentacyclo[16.2.1.13,6.18,11,113,16]tetracosas-
1,3(24),4,6,8,10,12,14,16(22),17,19-undecaene, 19,20-bis(dodecyloxy)-
2,7,12,17-tetraphenyl- (9CI) (CA INDEX NAME)

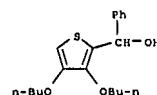
L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



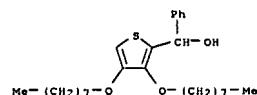
RN 807334-73-2 CAPLUS
 CN 2-Thiophenemethanol, 3,4-dimethoxy-α-phenyl- (9CI) (CA INDEX NAME)



RN 807334-74-3 CAPLUS
 CN 2-Thiophenemethanol, 3,4-dibutoxy-α-phenyl- (9CI) (CA INDEX NAME)



RN 807334-75-4 CAPLUS
 CN 2-Thiophenemethanol, 3,4-bis(octyloxy)-α-phenyl- (9CI) (CA INDEX NAME)



L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:802620 CAPLUS

DOCUMENT NUMBER: 141:304008

TITLE: Fluorinated pi-bridge second order nonlinear optical chromophores and electro-optic devices therefrom

INVENTOR(S): Huang, Duyun
PATENT ASSIGNEE(S): Lumines Corporation, USA
SOURCE: U.S. Pat. Appl. Publ., 20 pp., Cont.-in-part of U.S. Ser. No. 301,970.

CODEN: USXK0

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004192942	A1	20040930	US 2004-757375	20040114
US 7109355	B2	20060919		
US 2002160282	A1	20021031	US 2001-932831	20010817
US 6716995	B2	20040406		
EP 1760080	A1	20070307	EP 2006-126949	20010817
R: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR				
US 2003107027	A1	20030612	US 2002-301978	20021122
US 6750603	B2	20040615		
PRIORITY APPLN. INFO.:			US 2000-226267P	P 20000817
			US 2001-932831	A2 20010817
			US 2002-301978	A2 20021122
			EP 2001-965981	A3 20010817

OTHER SOURCE(S): MARPAT 141:304008

AB Nonlinear optical chromophores are described by the general formula D-n-A (n = a π bridge including a thiophene ring having oxygen atoms bonded directly to the 3 and 4 positions of the thiophene ring; D = a donor; A = an acceptor; and the oxygen atoms are further substituted with a fluorinated group comprising ≥3 fluorines). Second order nonlinear optical compns. comprising a polymer matrix and the chromophores

are also described. Electrooptical devices (e.g., optical modulators, optical switches, and optical directional couplers) and (e.g., optically-assisted) phased array radar systems are described which employ the compns.

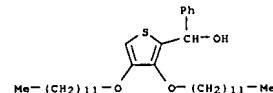
IT 540777-74-OP 540777-78-4P
 RL: DEV (Device component use); SPN (Synthetic preparation); PRSP (Preparation); USES (Uses)
 (fluorinated pi-bridge nonlinear optical chromophores and compns. and electrooptical devices using them)

RN 540777-74-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-((1E)-2-[3,4-dibutoxy-5-((1E)-2-[3,4-dibutoxy-5-((1E)-2-[4-(diethylaminophenyl)ethenyl]-2-thienyl)ethenyl]-5,5-dimethyl-2(5H)-furanylidene)- (CA INDEX NAME)

Double bond geometry as shown.

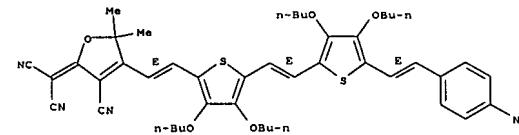
L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 807334-76-5 CAPLUS
 CN 2-Thiophenemethanol, 3,4-bis(dodecyloxy)-α-phenyl- (9CI) (CA INDEX NAME)



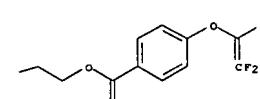
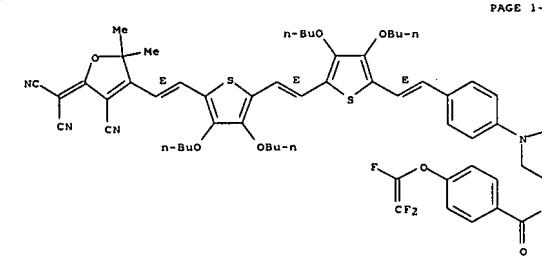
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

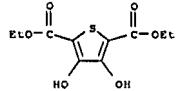


RN 540777-78-4 CAPLUS
 CN Benzoic acid, 4-[(trifluoroethoxy)oxy]-, [(4-((1E)-2-[3,4-dibutoxy-5-((1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl)-2-thienyl)ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI) (CA INDEX NAME)

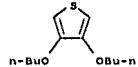
Double bond geometry as shown.



LS ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 IT 1822-66-8 126673-34-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (fluorinated pi-bridge nonlinear optical chromophores and compns. and
 electrooptical devices using them)
 RN 1822-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA
 INDEX NAME)

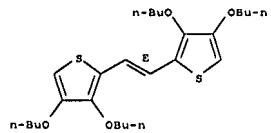


RN 126673-34-5 CAPLUS
 CN Thiophene, 3,4-dibutoxy- (9CI) (CA INDEX NAME)



IT 147212-47-3P 400760-60-3P 540777-72-8P
 540777-73-9P 540777-75-1P 540777-76-2P
 540777-77-3P 765317-75-1P 765317-81-5P
 765317-82-6P 765317-83-7P 765317-84-8P
 765317-85-9P 765317-87-1P 765317-88-2P
 765317-89-3P 765317-90-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (fluorinated pi-bridge nonlinear optical chromophores and compns. and
 electrooptical devices using them)
 RN 147212-47-3 CAPLUS
 CN Thiophene, 2,2'-(1E)-1,2-ethenediylbis[3,4-dibutoxy- (9CI) (CA INDEX
 NAME)

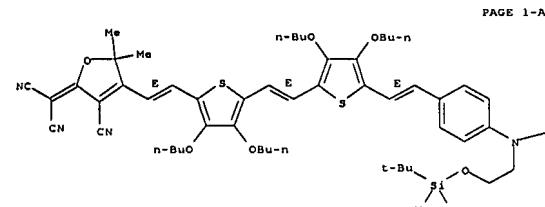
Double bond geometry as shown.



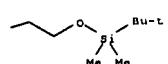
LS ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 Double bond geometry as shown.

IT 540777-76-2 CAPLUS
 CN Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-((1,1-dimethylethyl)dimethylsilyl)oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(SH)-furanylidene- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

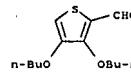


PAGE 1-A



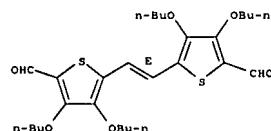
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LS ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RN 400760-60-3 CAPLUS
 CN 2-Thiophenecarboxaldehyde, 3,4-dibutoxy- (CA INDEX NAME)



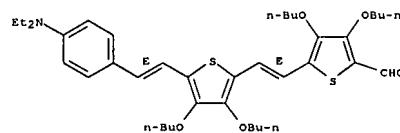
RN 540777-72-8 CAPLUS
 CN 2-Thiophenecarboxaldehyde, 5,5'-(1E)-1,2-ethenediylbis[3,4-dibutoxy- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 540777-73-9 CAPLUS
 CN 2-Thiophenecarboxaldehyde,
 3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

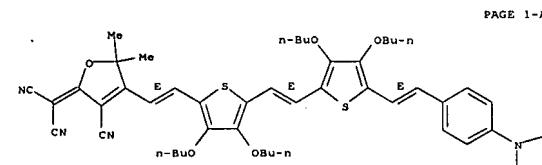


RN 540777-75-1 CAPLUS
 CN 2-Thiophenecarboxaldehyde, 5-[(1E)-2-[5-[(1E)-2-[4-[bis[2-((1,1-dimethylethyl)dimethylsilyl)oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]- (9CI) (CA INDEX NAME)

LS ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

IT 540777-77-3 CAPLUS
 Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(SH)-furanylidene]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

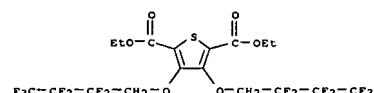


PAGE 1-A



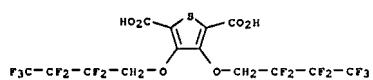
PAGE 1-B

RN 765317-79-1 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid,
 3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-,
 diethyl ester (9CI) (CA INDEX NAME)

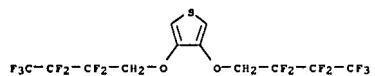


RN 765317-81-5 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-

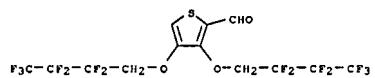
L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
(9CI) (CA INDEX NAME)



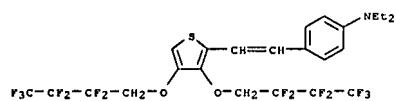
RN 765317-82-6 CAPLUS
CN Thiophene, 3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)- (9CI) (CA INDEX NAME)



RN 765317-83-7 CAPLUS
CN 2-Thiophene carboxaldehyde, 3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)- (9CI) (CA INDEX NAME)



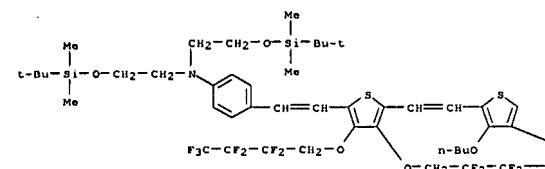
RN 765317-84-8 CAPLUS
CN Benzenamine, 4-(2-(3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl)ethenyl)-N,N-diethyl- (9CI) (CA INDEX NAME)



RN 765317-85-9 CAPLUS
CN 2-Thiophene carboxaldehyde, 5-(2-(4-(diethylamino)phenyl)ethenyl)-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)- (9CI) (CA INDEX NAME)

L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

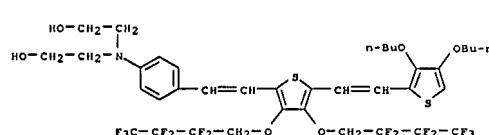
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PAGE 1-B

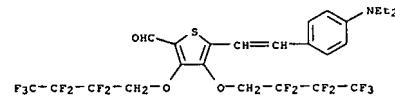
OBu-n
CF3

RN 765317-90-6 CAPLUS
CN Ethanol, 2,2'-(4-(2-[5-(2-(3,4-dibutoxy-2-thiophenyl)ethenyl)-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl]phenyl)imino)bis- (9CI) (CA INDEX NAME)

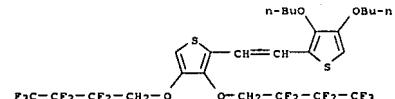


IT 765317-96-0P 765317-91-7P
RL: BPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses); (fluorinated pi-bridge nonlinear optical chromophores and compns. and electrooptical devices using them)
RN 765317-96-0 CAPLUS
CN Propanedinitrile, 3-cyano-4-(2-[5-(2-[4-(diethylamino)phenyl]ethenyl)-3,4-

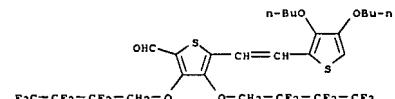
L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 765317-87-1 CAPLUS
CN Thiophene, 2-[2-(3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl)ethenyl]-3,4-dibutoxy- (9CI) (CA INDEX NAME)



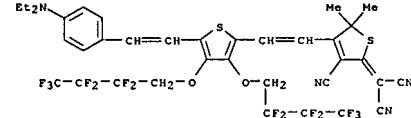
RN 765317-88-2 CAPLUS
CN 2-Thiophene carboxaldehyde, 5-(2-(3,4-dibutoxy-2-thiophenyl)ethenyl)-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)- (9CI) (CA INDEX NAME)



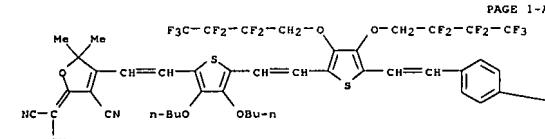
RN 765317-89-3 CAPLUS
CN Benzenamine, 4-(2-[5-(2-(3,4-dibutoxy-2-thiophenyl)ethenyl)-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl)ethenyl]-N,N-bis(2-[(1,1-dimethylethyl)dimethylsilyl]oxy)ethyl- (9CI) (CA INDEX NAME)

L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

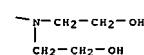
bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl)ethenyl]-5,5-dimethyl-2(5H)-thienylidene)- (9CI) (CA INDEX NAME)



RN 765317-91-7 CAPLUS
CN Propanedinitrile, 4-(2-[5-(2-[4-(bis(2-hydroxyethyl)amino)phenyl]ethenyl)-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thiophenyl)ethenyl]-3,4-dibutoxy-2-thiophenylidene)-3-cyano-5,5-dimethyl-2(5H)-furanylidene)- (9CI) (CA INDEX NAME)



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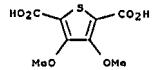


REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

LS ANSWER 5 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:609964 CAPLUS
 DOCUMENT NUMBER: 141:140454
 TITLE: Catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and
 3,4-dialkoxythiophenes
 INVENTOR(S): Baik, Woon-Phil; Kim, Young-Sam; Hong, Hee-Jung; Jung,
 Sang-Gook
 PATENT ASSIGNEE(S): Myongji University, S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 5 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

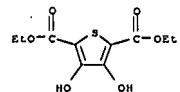
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147765	A1	20040729	US 2003-715845	20031119
US 702369	B2	20070410		
KR 2004043622	A	20040524	KR 2002-71992	20021119
PRIORITY APPN. INFO.:			KR 2002-71992	A 20021119

OTHER SOURCE(S): CASREACT 141:140454; MARPAT 141:140454
 AB A process for preparing 3,4-dialkoxythiophenes (e.g., 3,4-dimethoxythiophene) or 3,4-alkylenedioxythiophenes (e.g., 3,4-ethylenedioxythiophene) in high yield via the rapid decarboxylation of 3,4-dialkoxythiophenedicarboxylic acid (e.g., 3,4-dimethoxy-2,5-thiophenedicarboxylic acid) or 3,4-alkylenedioxythiophenedicarboxylic acid in a water-miscible polar solvent in the presence of copper catalyst (e.g., copper powder) under an oxygen atmosphere is described.
 IT 177364-96-4, 3,4-Dimethoxy-2,5-thiophenedicarboxylic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)
 RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



IT 51792-34-8P, 3,4-Dimethoxythiophene
 RL: BPN (Synthetic preparation); PRP (Preparation)
 (catalytic decarboxylation processes for preparing 3,4-alkylenedioxythiophenes and 3,4-dialkoxythiophenes)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

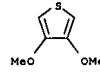
LS ANSWER 6 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2003-720296 CAPLUS
 DOCUMENT NUMBER: 140:66665
 TITLE: Electrosynthesis and spectroelectrochemical characterization of poly(3,4-dimethoxythiophene), poly(3,4-dipropoxythiophene) and poly(3,4-diethoxythiophene) films
 AUTHOR(S): Skurlik, Artur; Palys, Barbara; Mieczkowski, Jozef; Skompska, Magdalena
 CORPORATE SOURCE: Department of Chemistry, Warsaw University, Warsaw, 02
 SOURCE: 093, Pol. Electrochimica Acta (2003), 48(24), 3665-3676
 CODEN: ELCAAV; ISSN: 0013-4686
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Poly(3,4-dialkoxythiophene) films with different length of alkyl chain (1,3 and 8 C atoms) were obtained on Pt and ITO electrodes from the monomer soins. in MeCN by cyclic voltammetry (CV). The properties of the resulting films were studied by electrochem. methods, UV-visible, FTIR and NMR spectra. The CVs were correlated with differential cyclic voltabsorptograms (DCVA) recorded at the absorption maxima to explain the shape of the voltammograms of the polymers studied, dependent on the alkyl-chain length in alkoxy group. The presence of the zones of different crystallinity in the polymer film was postulated. Significant influence of the type of the solvent on asymmetry of the cyclic voltammograms for the polymer doping-undoping was discussed in terms of the solvent interaction with radical cation (polaron) delocalized on the alkoxy side groups. The polaron delocalization was proved by 1H-NMR spectra. Appearance of IR activated vibrations (IRAVs) in the range 1500-600 cm⁻¹ and a characteristic electronic band at 3300 cm⁻¹ at the polarization potential 0.25 V vs. Ag/Ag⁺ and their gradual changes upon further polymer oxidation were interpreted in terms of evolution of different charge carriers in lightly and heavily doped polymer.
 IT 14282-56-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkylation of)
 RN 14282-56-5 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester, disodium salt (9CI, 9CI) (CA INDEX NAME)



IT 51792-34-8, 3,4-Dimethoxythiophene 484679-00-7,
 3,4-Dipropoxythiophene

10538995.trn

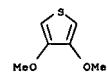
LS ANSWER 5 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



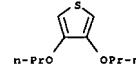
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

FORMAT

LS ANSWER 6 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (electrochem. polymn. on platinum in acetonitrile contg. LiClO₄)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)



RN 484679-00-7 CAPLUS
 CN Thiophene, 3,4-dipropoxy- (9CI) (CA INDEX NAME)



IT 121912-91-2P, Poly(3,4-dimethoxythiophene) 498581-42-3P
 638189-44-3P
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
 (electrosynthesis and spectroelectrochem. characterization of films of)

IT 121912-91-2 CAPLUS
 CN Thiophene, 3,4-dimethoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 51792-34-B
 CMF C6 H8 O2 S



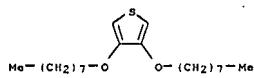
IT 121912-91-2P, Poly(3,4-dimethoxythiophene) 498581-42-3P
 638189-44-3P
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
 (electrosynthesis and spectroelectrochem. characterization of films of)

IT 121912-91-2 CAPLUS
 CN Thiophene, 3,4-dimethoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 207802-19-5

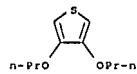
CMF C20 H36 O2 S



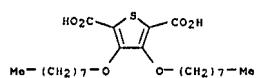
RN 638189-44-3 CAPLUS
CN Thiophene, 3,4-dipropoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 484679-00-7
CMF C10 H16 O2 S



IT 334756-04-6
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(formation and carboxylation in dioctyloxythiophene preparation)
RN 334756-04-6 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(octyloxy)- (9CI) (CA INDEX NAME)



IT 638189-45-4
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(formation in alkylation of disodium di(ethoxycarbonyl)thiophenedithiol
ate in DMF using octyl iodide and hydrolysis of)
RN 638189-45-4 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(octyloxy)-, diethyl ester (9CI)
(CA INDEX NAME)

ACCESSION NUMBER: 2003:506554 CAPLUS

DOCUMENT NUMBER: 139:85358

TITLE: Process for the production of 5-alkyldioxeno[2,3-c]thiophenes from the transesterificative cyclocondensation reaction of 3,4-dialkoxythiophenes with geminal alkanediols

INVENTOR(S): Reuter, Knud

PATENT ASSIGNEE(S): Bayer AG, Germany

SOURCE: Ger. Offen., 8 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

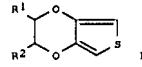
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10162746	A1	20030703	DE 2001-10162746	20011220
BE 1015256	A6	20041207	BE 2002-735	20021218
PRIORITY APPLN. INFO.:			DE 2001-10162746	A 20011220

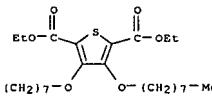
OTHER SOURCE(S): CASREACT 139:85358; MARPAT 139:85358
GI



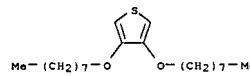
AB 5-Alkyldioxeno[2,3-c]thiophenes [I; R1 = (un)branched (un)substituted C1-20 alkyl; R2 = H, (un)branched (un)substituted C1-20 alkyl; R1R2 = alkyl] are prepared in high yield and selectivity by the transesterificative cyclocondensation reaction of 3,4-dialkoxythiophenes [II; R = C1-4 alkyl] with geminal alkanediols R1CH(OH)CH(OH)R2 in the presence of an acid catalyst. Thus, 1,2-hexadecanediol was reacted with 3,4-bis(propoxy)thiophene in the presence of p-toluenesulfonic acid, producing 5-tetradecyldioxeno[2,3-c]thiophene (m.p. 32°) in 67.2% theor. yield.

IT 58416-04-9P, Dimethyl 3,4-dihydroxy-2,5-thiophenedicarboxylate
552857-02-0P 552857-03-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for the production of 3,4-dialkoxythiophenes from)

RN 58416-04-9 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester (6CI, 9CI)
(CA INDEX NAME)

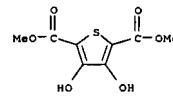


IT 207802-19-5P, 3,4-Dioctyloxythiophene
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and electrochem. polymerization on platinum in acetonitrile containing LiClO4)
RN 207802-19-5 CAPLUS
CN Thiophene, 3,4-bis(octyloxy)- (9CI) (CA INDEX NAME)

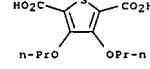


REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

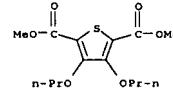
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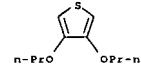
RN 552857-02-0 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dipropoxy- (9CI) (CA INDEX NAME)



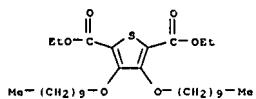
RN 552857-03-1 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dipropoxy-, dimethyl ester (9CI) (CA INDEX NAME)



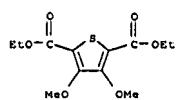
IT 484679-00-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for the production of 5-alkyldioxeno[2,3-c]thiophenes from the transesterificative cyclocondensation reaction of 3,4-dialkoxythiophenes with geminal alkanediols)
RN 484679-00-7 CAPLUS
CN Thiophene, 3,4-dipropoxy- (9CI) (CA INDEX NAME)



LS ANSWER 8 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2002:881499 CAPLUS
 DOCUMENT NUMBER: 139:230513
 TITLE: Product class 10: thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides
 AUTHOR(S): Schatz, J.
 CORPORATE SOURCE: Abt. Organische Chemie I, Universitaet Ulm, Ulm, 89001, Germany
 SOURCE: Science of Synthesis (2002), 9, 287-422
 CODEN: SSCYJ9
 PUBLISHER: Georg Thieme Verlag
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English
 AB A review describing methods for preparing thiophenes, thiophene 1,1-dioxides, and thiophene 1-oxides.
 IT 153846-91-4 177364-92-0 177364-93-1
 177364-95-3
 RL: RCT (Reactant); RACT (Reactant or reagent) (preparation of thiophene, thiophene dioxide, and thiophene oxide derivs.)
 RN 153846-91-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)-, diethyl ester (9CI) (CA INDEX NAME)



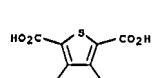
RN 177364-92-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, diethyl ester (9CI) (CA INDEX NAME)



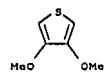
RN 177364-93-1 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy-, diethyl ester (9CI) (CA INDEX NAME)

LS ANSWER 8 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

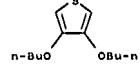
RN 177364-97-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy- (9CI) (CA INDEX NAME)



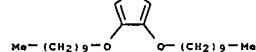
IT 51792-34-0P 126673-34-5P 156112-75-3P
 177364-99-7P 595565-18-7P
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of thiophene, thiophene dioxide, and thiophene oxide derivs.)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)



RN 126673-34-5 CAPLUS
 CN Thiophene, 3,4-dibutoxy- (9CI) (CA INDEX NAME)



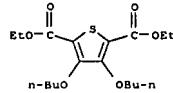
RN 156112-75-3 CAPLUS
 CN Thiophene, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



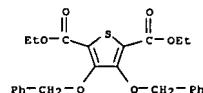
RN 177364-99-7 CAPLUS

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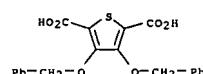
LS ANSWER 8 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



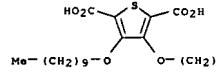
RN 177364-95-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)-, diethyl ester (9CI) (CA INDEX NAME)



IT 38321-97-0P 143084-55-3P 177364-96-4P
 177364-97-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of thiophene, thiophene dioxide, and thiophene oxide derivs.)
 RN 38321-97-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



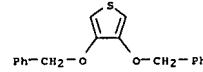
RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



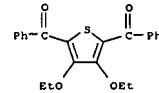
RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)

LS ANSWER 8 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

CN Thiophene, 3,4-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



RN 595565-18-7 CAPLUS
 CN Methanone, (3,4-diethoxy-2,5-thiophenediyl)bis(phenyl- (9CI) (CA INDEX NAME)

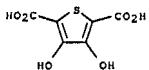


REFERENCE COUNT: 1180 THERE ARE 1180 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

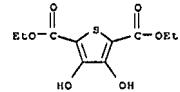
L5 ANSWER 9 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2002:867225 CAPLUS
 DOCUMENT NUMBER: 137:377495
 TITLE: Photothermographic material and image formation for reducing stain after continuous development
 INVENTOR(S): Kudo, Shinji
 PATENT ASSIGNEE(S): Konica Co., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 51 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002328443	A	20021115	JP 2001-131660	20010427
PRIORITY APPLN. INFO.:			JP 2001-131660	20010427

AB The material has at least (a) a photosensitive layer containing at least an organic Ag salt, a photosensitive Ag halide, a reducing agent, and a binder with 80-110° glass transition temperature and (b) an elec. conducting layer (A) containing a metal oxide or a conductive polymer, in which a surfactant $\leq 30\text{ mg/m}^2$ is contained in the layer A side. It is exposed for image formation by a scanner with longitudinal multimode laser beams in their controlled distribution.
 IT 14282-58-7D, ester
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of diethylenedioxythiophene)
 RN 14282-58-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy- (8CI, 9CI) (CA INDEX NAME)

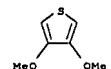


L5 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

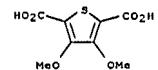


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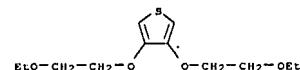
IT 51792-34-8P 177364-96-4P 403700-05-0P
 403700-09-4P 403700-14-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (Mannich reaction of dialkoxythiophene compds. with secondary amines)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)



RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



RN 403700-05-0 CAPLUS
 CN Thiophene, 3,4-bis(2-ethoxyethoxy)- (9CI) (CA INDEX NAME)

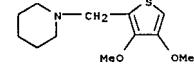


RN 403700-09-4 CAPLUS
 CN Piperidine, 1-[(3,4-dimethoxy-2-thienyl)methyl]- (9CI) (CA INDEX NAME)

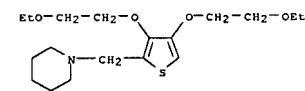
L5 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2001:896739 CAPLUS
 DOCUMENT NUMBER: 136:232211
 TITLE: Optimization of substitution at the 2- and 5-positions
 AUTHOR(S): Halfpenny, Joan; Rooney, Phillip B.; Sisman, Zachary S.
 CORPORATE SOURCE: Department of Chemistry and Physics, The Nottingham Trent University, Nottingham, NG11 8NS, UK
 SOURCE: Journal of the Chemical Society, Perkin Transactions 1
 (2001), (20), 2595-2603
 CODEN: JCSPCE; ISSN: 1472-7781
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 136:232211

AB A number of 3,4-dialkoxythiophene compds. have been synthesized and their reactivities assessed via the Mannich reaction with secondary amines. These reactions surprisingly gave the bis-Mannich bases substituted at the 2- and 5-positions as well as the expected mono-Mannich bases substituted at the 2-position. Conditions were optimized to give sym. bis-2,5-Mannich bases in one step and asym. bis-2,5-Mannich bases in two steps. Several bis(thien-2-ylmethyl)amines derived from 3,4-dialkoxythiophenes are reported, their synthesis being performed under both normal and high dilution conditions. Some syntheses also afforded the (thien-2-ylmethyl)amine oligomers. Further substitution of the bis(thien-2-ylmethyl)amines at the 5-position via the Mannich reaction also proved successful. The factors affecting the yields and substitution patterns are discussed, together with mol. modeling of the spatial requirements.
 IT 14282-56-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (Mannich reaction of dialkoxythiophene compds. with secondary amines)
 RN 14282-56-5 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester, disodium salt (8CI, 9CI) (CA INDEX NAME)

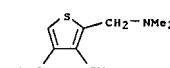
L5 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



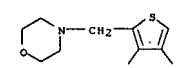
RN 403700-14-1 CAPLUS
 CN Piperidine, 1-[(3,4-bis(2-ethoxyethoxy)-2-thienyl)methyl]- (9CI) (CA INDEX NAME)



IT 403700-08-3P 403700-10-7P 403700-13-0P
 403700-15-2P 403700-17-4P 403700-18-5P
 403700-21-0P 403700-22-1P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (Mannich reaction of dialkoxythiophene compds. with secondary amines)
 RN 403700-08-3 CAPLUS
 CN 2-Thiophenemethanamine, 3,4-dimethoxy-N,N-dimethyl- (9CI) (CA INDEX NAME)

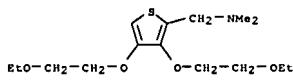


RN 403700-10-7 CAPLUS
 CN Morpholine, 4-[(3,4-dimethoxy-2-thienyl)methyl]- (9CI) (CA INDEX NAME)

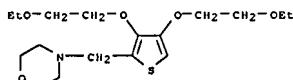


RN 403700-13-0 CAPLUS
 CN 2-Thiophenemethanamine, 3,4-bis(2-ethoxyethoxy)-N,N-dimethyl- (9CI) (CA INDEX NAME)

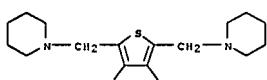
LS ANSWER 10 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



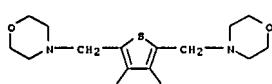
RN 403700-15-2 CAPLUS
 CN Morpholine, 4-[(3,4-bis(2-ethoxyethoxy)-2-thienyl)methyl]- (9CI) (CA INDEX NAME)



RN 403700-17-4 CAPLUS
 CN Piperidine, 1,1'-(3,4-dimethoxy-2,5-thiophenediyl)bis(methylene)bis- (9CI) (CA INDEX NAME)



RN 403700-18-5 CAPLUS
 CN Morpholine, 4,4'-(3,4-dimethoxy-2,5-thiophenediyl)bis(methylene)bis- (9CI) (CA INDEX NAME)



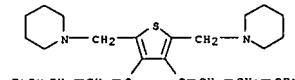
RN 403700-21-0 CAPLUS
 CN Piperidine, 1,1'-(3,4-bis(2-ethoxyethoxy)-2,5-thiophenediyl)bis(methylene)bis- (9CI) (CA INDEX NAME)

LS ANSWER 11 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2001:749864 CAPLUS
 DOCUMENT NUMBER: 136:86167
 TITLE: Revisiting the electropolymerization of 3,4-dimethoxythiophene in organic and micellar media
 AUTHOR(S): Fall, M.; Asogba, L.; Aaron, J.-J.; Dieng, M. M.
 CORPORATE SOURCE: Departement de Chimie, Universite C.A.D., Faculte des Sciences et Techniques, Senegal, Dakar, Fr.
 SOURCE: Synthetic Metals (2001), 123(3), 365-372
 CODEN: SYMEOZ; ISSN: 0379-6779
 PUBLISHER: Elsevier Science S.A.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Poly(3,4-dimethoxythiophene) (PDMOT) was prepared by electrochem. polymerization of 3,4-dimethoxythiophene in acetonitrile and aqueous anionic sodium dodecylsulfate micellar medium with LiClO4 as supporting electrolyte, by voltammetric and potentiostatic techniques. Two distinct mechanisms were found: PDMOT films prepared in acetonitrile were thick, electroreactive, and not soluble in organic media, whereas those obtained in the micellar medium were thin and soluble in organic media. PDMOT was characterized by cyclic voltammetry, electronic absorption and fluorescence spectroscopy, IR, and MALDI-TOF mass spectrometry. PDMOT electrodeposited in the micellar medium is constituted of short-chain oligomers. The difference on PDMOT characteristics depending on preparation medium is assigned to inhibition of the electrochem. polymerization reaction in the micellar solution, resulting from charge delocalization of radical-cations and diradical-dications towards the methoxy groups.
 IT 121912-91-2P, Poly(3,4-dimethoxythiophene)
 RL: PRP (Properties); SPP (Synthetic preparation); PREP (Preparation)
 (electrochem. polymerization of prepared dimethoxythiophene in acetonitrile and micellar media and morphol. and electroactivity of prepared poly(dimethoxythiophene))
 RN 121912-91-2 CAPLUS
 CN Thiophene, 3,4-dimethoxy-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 51792-34-8
 CMF C6 H8 O2 S

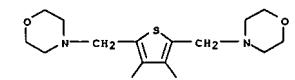
IT 58416-04-9P, 3,4-Dihydroxy-2,5-dicarboxythiophene dimethyl ester 108199-25-3P, 3,4-Dioxy-2,5-dicarboxythiophene dimethyl ester disodium salt 118851-98-2, 3,4-Dimethoxy-2,5-dicarboxythiophene dimethyl ester 177364-96-4P, 3,4-Dimethoxythiophene 2,5-dicarboxylic acid 186702-88-1P, 3,4-Dihydroxy-2,5-dicarboxythiophene dimethyl ester dipotassium salt

10538995.trn

LS ANSWER 10 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

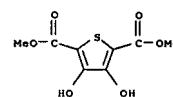


RN 403700-22-1 CAPLUS
 CN Morpholine, 4,4'-(3,4-bis(2-ethoxyethoxy)-2,5-thiophenediyl)bis(methylene)bis- (9CI) (CA INDEX NAME)

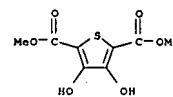


REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

LS ANSWER 11 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (intermediate; electrochem. polyan. of prep. dimethoxythiophene in acetonitrile and micellar media and morphol. and electroactivity of prep. poly(dimethoxythiophene))
 RN 58416-04-9 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester (6CI, 9CI) (CA INDEX NAME)

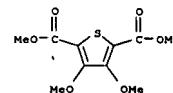


RN 108199-25-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-dimethyl ester, sodium salt (1:2) (CA INDEX NAME)



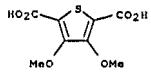
● 2 Na

RN 118851-98-2 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, dimethyl ester (9CI) (CA INDEX NAME)

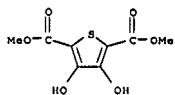


RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)

L5 ANSWER 11 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

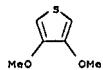


RN 386702-88-1 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester, dipotassium salt (9CI) (CA INDEX NAME)



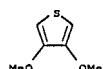
• 2 K

IT 51792-34-8P, 3,4-Dimethoxythiophene
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (monomer; electrochem. polymerization of prepared dimethoxythiophene
 in acetone and micellar media and morphol. and electroactivity of
 prepared poly(dimethoxythiophene))
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

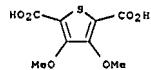


REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 12 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. of dialkoxythiophenes and alkylenedioxythiophenes by decarboxylation of thiophenedicarboxylic acid precursors)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)



IT 177364-96-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of dialkoxythiophenes and alkylenedioxythiophenes by decarboxylation of thiophenedicarboxylic acid precursors)
 RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



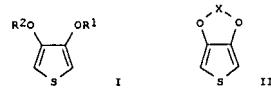
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 12 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:747165 CAPLUS
 DOCUMENT NUMBER: 135:289187
 TITLE: Preparation of dialkoxythiophenes and alkylenedioxythiophenes
 INVENTOR(S): Rauchschwalbe, Guenter; Jonas, Friedrich
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Eur. Pat. Appl., 10 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142888	A1	20011010	EP 2001-106444	20010323
EP 1142888	B1	20040908		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 10016723	A1	20011011	DE 2000-10016723	20000404
US 2001034453	A1	20011025	US 2001-813875	20010321
US 6369239	B2	20020409		
AT 275555	T	20040915	AT 2001-106444	20010323
ES 2228680	T3	20050416	ES 2001-1106444	20010323
JP 2001288182	A	20011016	JP 2001-92829	20010328
PRIORITY APPLN. INFO.:			DE 2000-10016723	A 20000404

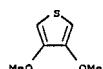
OTHER SOURCE(S): MARPAT 135:289187
 GI



AB Dialkoxythiophenes (I; R1, R2 = Cl-15 alkyl) and alkylenedioxythiophenes (II; X = (un)substituted (CH2)n; n = 1-12), useful as monomers for electrically conductive polymers, are manufactured by decarboxylation of 3,4-dialkoxy- resp. 3,4-dialklenedioxy-2,5-thiophenedicarboxylic acids in the presence of solvents or diluents which have b.ps. higher than decarboxylated products and are not aromatic amines, and optionally, heavy metal salt catalysts. The products are separated by distillation. For example, heating a mixture of 450 g di-Bu phthalate and 240 g 3,4-ethylenedioxythiophene-2,5-dicarboxylic acid to 150° in vacuo (apprx. 30 mbar) and removing H2O by distillation, heating the residue for 24 h at 240° under N until CO2 evolution ceased and distilling the product at 0.1 mbar gave 110 g 3,4-ethylenedioxythiophene. IT 51792-34-8P, 3,4-Dimethoxythiophene

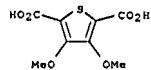
L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. of dialkoxythiophenes and alkylenedioxythiophenes by decarboxylation of thiophenedicarboxylic acid precursors)

RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)



IT 177364-96-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of dialkoxythiophenes and alkylenedioxythiophenes by decarboxylation of thiophenedicarboxylic acid precursors)

RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2001:94657 CAPLUS
 DOCUMENT NUMBER: 134:296193
 TITLE: The synthesis and characterization of fluorescent poly(heteroaromatic oxadiazole)s

AUTHOR(S): Ng, S. C.; Ding, M.; Chan, H. S. O.; Yu, W.-L.
 CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 119260, Singapore
 SOURCE: Macromolecular Chemistry and Physics (2001), 202(1), 8-13
 CODEN: MCPIES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

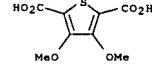
LANGUAGE: English

AB Five polymers comprising alternating electron-donating thiophene and electron-withdrawing oxadiazole units were synthesized by polycondensation of substituted thiophenes and hydrazine hydrate, followed by dehydrative cyclization to obtain the thiophene-oxadiazole sequence. The optical and charge transport properties of the poly(thiophene oxadiazole)s were studied by UV-VIS absorption spectroscopy, fluorescence emission spectroscopy, and cyclic voltammetry. All the products showed good thermal stability; the presence of electron donating groups at the 3 position caused a decrease in thermal stability vs. the unsubstituted polythiophene-oxadiazole. All polymers depicted blue fluorescence and high fluorescence quantum efficiency. The electron-donating alkoxy group at 3- and 4-positions of the thiophene ring and the length of the alkoxy side chain also affected the fluorescence quantum yield.

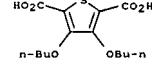
IT 177364-96-4P, 3,4-Dimethoxy-2,5-dicarboxythiophene
 177364-97-5P, 3,4-Dibutoxy-2,5-dicarboxythiophene
 334756-04-6P, 3,4-Diethoxy-2,5-dicarboxythiophene
 334756-05-7P, 3,4-Diisopropoxy-2,5-dicarboxythiophene

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and thermal stability and carrier transport of blue fluorescent poly(thiophene oxadiazole) conjugated polymers)

RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



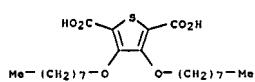
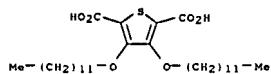
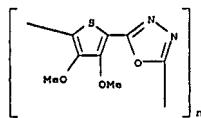
RN 177364-97-5 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy- (9CI) (CA INDEX NAME)



RN 334756-04-6 CAPLUS

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

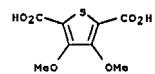
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(octyloxy)- (9CI) (CA INDEX NAME)

RN 334756-05-7 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(dodecyloxy)- (9CI) (CA INDEX NAME)IT 334756-14-0P 334756-15-9P 334756-16-0P
334756-17-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and thermal stability and carrier transport of blue
fluorescent
poly(thiophene oxadiazole) conjugated polymers)
RN 334756-14-8 CAPLUS
CN Poly[1,3,4-oxadiazole-2,5-diyl(3,4-dimethoxy-2,5-thiophenediyl)] (9CI)
(CA INDEX NAME)RN 334756-15-9 CAPLUS
CN Poly[1,3,4-oxadiazole-2,5-diyl(3,4-dibutoxy-2,5-thiophenediyl)] (9CI)
(CA INDEX NAME)L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
(prepn. and thermal stability and carrier transport of blue
fluorescent
poly(thiophene oxadiazole) conjugated polymers)

RN 334756-06-8 CAPLUS

CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, polymer with hydrazine
(9CI) (CA INDEX NAME)

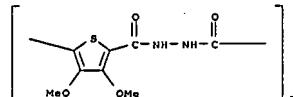
CM 1

CRN 177364-96-4
CMF C8 H8 O6 S

CM 2

CRN 302-01-2
CMF H4 N2

H2N-NH2

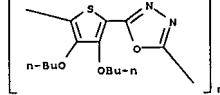
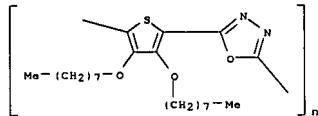
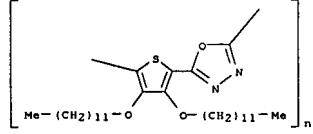
RN 334756-07-9 CAPLUS
CN Poly[(3,4-dimethoxy-2,5-thiophenediyl)carbonylhydrazocarbonyl] (9CI) (CA INDEX NAME)RN 334756-08-0 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy-, polymer with hydrazine
(9CI) (CA INDEX NAME)

CM 1

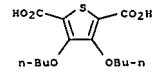
CRN 177364-97-5
CMF C14 H20 O6 S

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

CN Poly[1,3,4-oxadiazole-2,5-diyl(3,4-bis(octyloxy)-2,5-thiophenediyl)] (9CI) (CA INDEX NAME)

RN 334756-16-0 CAPLUS
CN Poly[1,3,4-oxadiazole-2,5-diyl(3,4-bis(octyloxy)-2,5-thiophenediyl)] (9CI) (CA INDEX NAME)RN 334756-17-1 CAPLUS
CN Poly[1,3,4-oxadiazole-2,5-diyl(3,4-bis(dodecyloxy)-2,5-thiophenediyl)] (9CI) (CA INDEX NAME)IT 334756-06-8P, 3,4-Dimethoxy-2,5-dicarboxythiophene-hydrazine
hydrate copolymer 334756-07-9P, 3,4-Dimethoxy-2,5-
dicarboxythiophene-hydrazine hydrate copolymer, SRU 334756-08-0P
, 3,4-Dibutoxy-2,5-dicarboxythiophene-hydrazine hydrate copolymer
334756-09-1P, 3,4-Dibutoxy-2,5-dicarboxythiophene-hydrazine
hydrate copolymer, SRU 334756-10-4P, 3,4-Dioctyloxy-2,5-
dicarboxythiophene-hydrazine hydrate copolymer 334756-11-5P,
3,4-Dioctyloxy-2,5-dicarboxythiophene-hydrazine hydrate copolymer, SRU
334756-12-6P, 3,4-DidodecylOxy-2,5-dicarboxythiophene-hydrazine
hydrate copolymer 334756-13-7P, 3,4-DidodecylOxy-2,5-
dicarboxythiophene-hydrazine hydrate copolymer, SRU
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

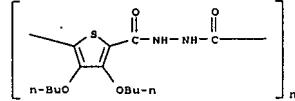
L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



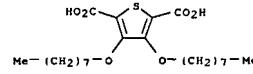
CM 2

CRN 302-01-2
CMF H4 N2

H2N-NH2

RN 334756-09-1 CAPLUS
CN Poly[(3,4-dibutoxy-2,5-thiophenediyl)carbonylhydrazocarbonyl] (9CI) (CA INDEX NAME)RN 334756-10-4 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(octyloxy)-, polymer with
hydrazine
(9CI) (CA INDEX NAME)

CM 1

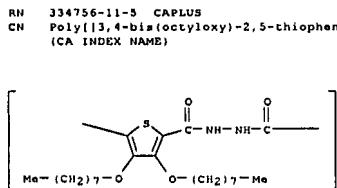
CRN 334756-04-6
CMF C22 H36 O6 S

CM 2

CRN 302-01-2
CMF H4 N2

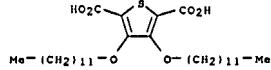
H2N-NH2

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 334756-12-6 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(dodecyloxy)-, polymer with hydrazine (9CI) (CA INDEX NAME)

CM 1

CRN 334756-05-7
CMF C30 H52 O6 S

CM 2

CRN 302-01-2
CMF H4 N2

H2N-NH2

RN 334756-13-7 CAPLUS
 CN Poly[(3,4-bis(dodecyloxy)-2,5-thiophenediyl)carbonylhydrazocarbonyl] (9CI) (CA INDEX NAME)

L5 ANSWER 14 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:535397 CAPLUS

DOCUMENT NUMBER: 133:122801

TITLE: Single component sulfur-based cathodes for lithium and

INVENTOR(S): lithium-ion batteries

Pope, John; Buttry, Dan; White, Shannon; Corcoran, Robert

PATENT ASSIGNEE(S): Blue Sky Batteries, Inc., USA

SOURCE: PCT Int. Appl., 48 pp.

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 200045451	A1	20000803	WO 2000-US2445	20000131
W: JP, US RN: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1179220	A2	20020213	EP 2000-907101	20000131
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, NL, SE, MC, PT, IE, FI				
US 6869729	B1	20050322	US 2002-890529	20020405
US 2006073386	A1	20060406	US 2005-85234	20050322
PRIORITY APPLN. INFO.:			US 1999-118060P	P 19990201
			WO 2000-US2445	W 20000131
			US 2002-890529	A1 20020405

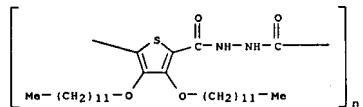
AB The cathode materials of concern are the conducting polymer or backbone and the redox active species or sulfur species. The selection of the materials is based on the characteristics of the materials relating to the

other components of the batteries and to each other. The present invention also pertains to the resultant cathode materials, particularly

a selected cathode material of a single component sulfur-based conducting polymer with the sulfur species covalently linked to the conducting polymer, and most particularly a thiophene based polymer with covalently linked sulfur species. The conducting polymers have been covalently-derivatized with sulfides and/or sulfide-containing groups as battery cathode materials. The present invention also pertains to a battery employing the selection method and resultant cathode materials.

IT 1822-66-8P, 2,5-Dicarbethoxy-3,4-dihydroxythiophene
 14282-58-7P 14282-59-8P, 3,4-Thiophenediol
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (single component sulfur-based cathodes for lithium and lithium-ion batteries)
 RN 1822-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)

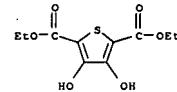
L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



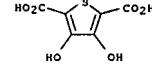
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

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L5 ANSWER 14 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 14282-58-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy- (8CI, 9CI) (CA INDEX NAME)



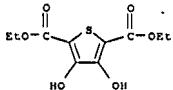
RN 14282-59-8 CAPLUS
 CN 3,4-Thiophenediol (8CI, 9CI) (CA INDEX NAME)



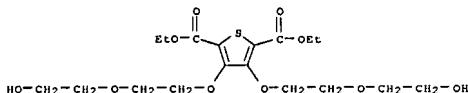
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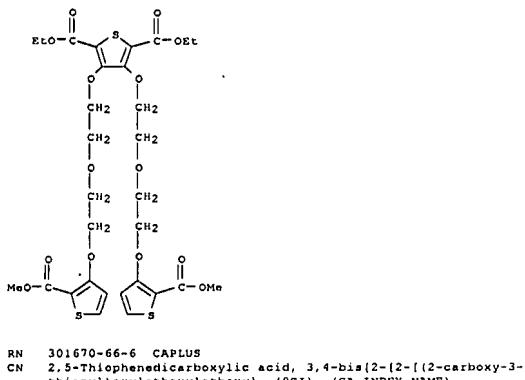
L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2000:528852 CAPLUS
 DOCUMENT NUMBER: 133:309887
 TITLE: A facile route to a novel aza-crown ether incorporating three thiophene moieties
 AUTHOR(S): Halfpenny, J.; Rooney, P. B.; Sloman, Z. S.
 CORPORATE SOURCE: Clifton Lane, Department of Chemistry and Physics, Nottingham Trent University, Nottingham, NG11 8NS, UK
 SOURCE: Tetrahedron Letters (2000), 41(32), 6223-6226
 CODEN: TELEAY; ISSN: 0040-4039
 PUBLISHER: Elsevier Science Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 133:309887
 AB The preparation of the first of a novel type of large aza-crown ether is reported. The macrocycle is synthesized by linking a 3,4-dialkoxithiophene moiety with two 3-hydroxythiophene units and ring closure is effected with piperazine via the Mannich reaction.
 IT 1822-66-8, Diethyl 3,4-dihydroxy-2,5-thiophenedicarboxylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of aza-crown ether incorporating three thiophene moieties)
 RN 1822-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)



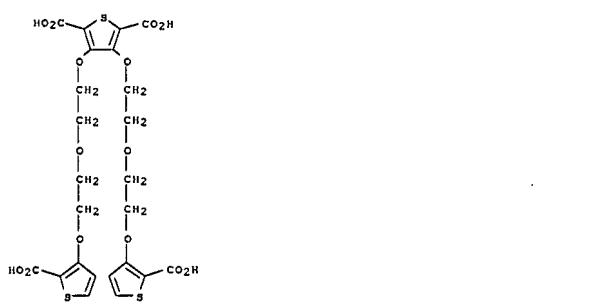
IT 301670-61-1P 301670-63-3P 301670-64-4P
 301670-66-6P 301670-68-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of aza-crown ether incorporating three thiophene moieties)
 RN 301670-61-1 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(2-(2-hydroxyethoxy)ethoxy)-, diethyl ester (9CI) (CA INDEX NAME)



L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

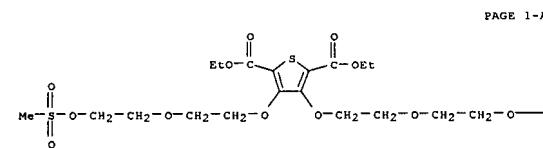


RN 301670-66-6 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(2-(2-carboxy-3-thienyloxy)ethoxy)- (9CI) (CA INDEX NAME)



RN 301670-68-8 CAPLUS
 CN Thiophene, 3,4-bis(2-(2-(3-thienyloxy)ethoxy)ethoxy)- (9CI) (CA INDEX NAME)

L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 RN 301670-63-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis[2-[2-[(methylsulfonyl)oxy]ethoxy]-, diethyl ester (9CI) (CA INDEX NAME)



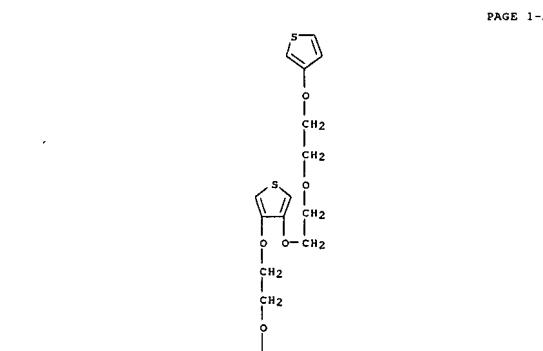
PAGE 1-A



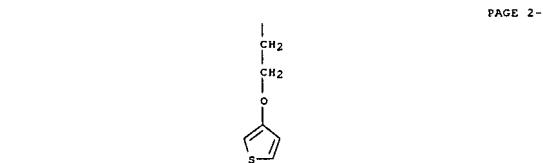
PAGE 1-B

RN 301670-64-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis[2-[2-[(2-(methoxycarbonyl)-3-thienyl)oxy]ethoxy]-, diethyl ester (9CI) (CA INDEX NAME)

L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



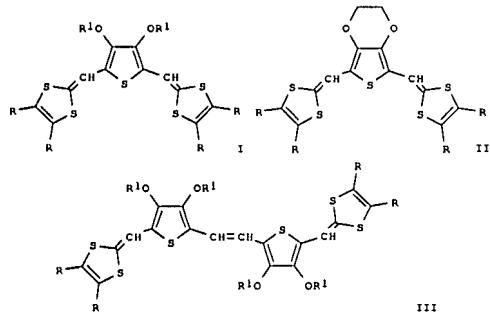
PAGE 1-A



PAGE 2-A

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1999:304427 CAPLUS
 DOCUMENT NUMBER: 131:102221
 TITLE: Low oxidation potential tetrathiafulvalene analogs based on 3,4-dialkoxythiophene π -conjugating spacers
 AUTHOR(S): Akoudad, Said; Frere, Pierre; Mercier, Nicolas; Roncalli, Jean
 CORPORATE SOURCE: Ingénierie Moléculaire et Matériaux Organiques CNRS UMR 6501, Université d'Angers, Angers, 49045, Fr.
 SOURCE: 4267-4272
 CODEN: JOCHEA; ISSN: 0022-3263
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English



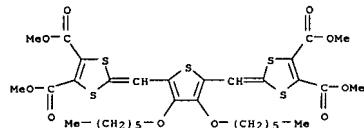
AB Tetrathiafulvalene analogs involving dihexyloxythiophene I, ethylenedioxythiophene II, and bis(3,4-dihexyloxy-2-thienyl)ethylene III ($R = CO_2Me$, SM , $n-Pr$; $R_1 = hexyl$) as conjugating spacer and diversely substituted at the 1,3-dithiole ring have been synthesized. Electronic absorption spectra show the expected decrease of HOMO-LUMO gap when increasing the electron-releasing power of R or the length of the conjugating spacers. Cyclic voltammetry (CV) shows that whereas compds. I and II are reversibly oxidized into their cation radical and dication through two one-electron steps, for compds. III the dication is formed directly via a two-electron transfer. Comparison of the data for compds. II and III with those of their resp. analogs based on thiophene and dithienylethylene shows that introduction of the electron-donating alkoxy

LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 groups at the 3 and 4 positions of the thiophene ring produces a 150-200 mV neg. shift of the first redox potential (E°). On the other hand, CV data for compds. I and II reveal several unusual features such as

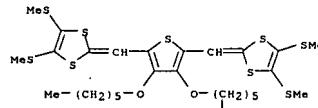
E° ~ 0.10 V/SCE ranking among the lowest known to date and a Coulombic repulsion between pos. charges in the dication larger than for the analog π -donors based on unsubstituted thiophene. These results are interpreted by a major reorganization of the electronic distribution in the donor mol. due to alkoxy groups: the highest electron d. moving from the 1,3-dithiole moiety toward the central thiophene ring.

IT 230949-77-6P 230949-78-7P 230949-79-8P
 230949-83-4P 230949-84-5P 230949-85-6P
 RL: RPR (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation, cyclic voltammetry, and absorption spectra of tetrathiafulvalenes with dialkoxythiophene spacers)

RN 230949-77-6 CAPLUS
 CN 1,3-Dithiole-4,5-dicarboxylic acid, 2,2'-(3,4-bis(hexyloxy)-2,5-thiophenediyl)dimethyliynebis-, tetramethyl ester (9CI) (CA INDEX NAME)

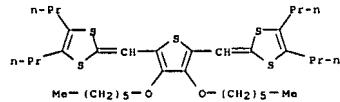


RN 230949-78-7 CAPLUS
 CN 1,3-Dithiole, 2,2'-(3,4-bis(hexyloxy)-2,5-thiophenediyl)dimethyliynebis-(4,5-bis(methylthio)- (9CI) (CA INDEX NAME)

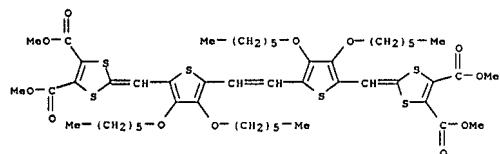


RN 230949-79-8 CAPLUS
 CN 1,3-Dithiole, 2,2'-(3,4-bis(hexyloxy)-2,5-thiophenediyl)dimethyliynebis-(4,5-dipropyl- (9CI) (CA INDEX NAME)

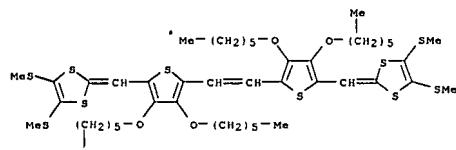
LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 230949-83-4 CAPLUS
 CN 1,3-Dithiole-4,5-dicarboxylic acid, 2,2'-(1,2-ethenediyliobis[3,4-bis(hexyloxy)-5,2-thiophenediyl]methylidyne)bis-, tetramethyl ester (9CI) (CA INDEX NAME)

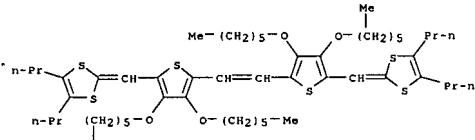


RN 230949-84-5 CAPLUS
 CN 1,3-Dithiole, 2,2'-(1,2-ethenediyliobis[3,4-bis(hexyloxy)-5,2-thiophenediyl]methylidyne)bis-(4,5-bis(methylthio)- (9CI) (CA INDEX NAME)

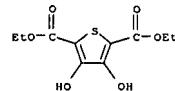


RN 230949-85-6 CAPLUS
 CN 1,3-Dithiole, 2,2'-(1,2-ethenediyliobis[3,4-bis(hexyloxy)-5,2-thiophenediyl]methylidyne)bis-(4,5-dipropyl)- (9CI) (CA INDEX NAME)

LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

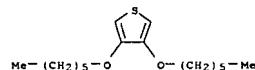


IT 1022-66-8
 RL: RCT (Reactant); RACT (Reactant or reagent) (preparation, cyclic voltammetry, and absorption spectra of tetrathiafulvalenes with dialkoxythiophene spacers)
 RN 1022-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)



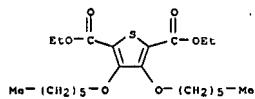
IT 211235-81-3P 230949-86-7P 230949-87-8P
 230949-88-9P 230949-89-0P 230949-90-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation, cyclic voltammetry, and absorption spectra of tetrathiafulvalenes with dialkoxythiophene spacers)

RN 211235-81-3 CAPLUS
 CN Thiophene, 3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)

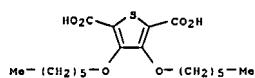


RN 230949-86-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(hexyloxy)-, diethyl ester (9CI) (CA INDEX NAME)

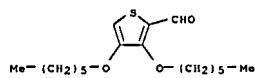
LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 230949-87-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)

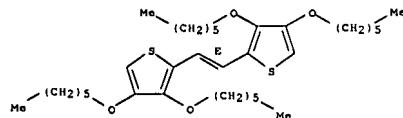


RN 230949-88-9 CAPLUS
 CN 2-Thiophenecarboxaldehyde, 3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)



RN 230949-89-0 CAPLUS
 CN Thiophene, 2,2'-(1E)-1,2-ethenediylbis[3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)]

Double bond geometry as shown.



RN 230949-90-3 CAPLUS
 CN 2-Thiophenecarboxaldehyde, 5,5'-(1E)-1,2-ethenediylbis[3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)]

Double bond geometry as shown.

LS ANSWER 17 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:45212 CAPLUS

DOCUMENT NUMBER: 130:111508

TITLE: Symmetrical dyes with large two-photon absorption cross-sections

INVENTOR(S): Reinhardt, Bruce A.; Kannan, Ramamurthi; Brott, Lawrence L.; Clarkson, Stephen J.

PATENT ASSIGNEE(S): United States Dep. of the Air Force, USA

SOURCE: U.S., 5 pp.

CODEN: USXKAM

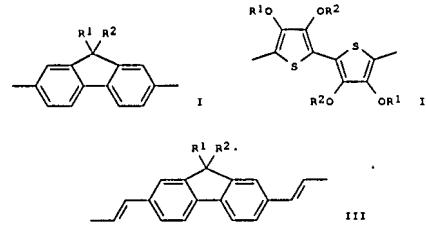
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5859251	A	19990112	US 1997-932529	19970918
PRIORITY APPLN. INFO.:			US 1997-932529	19970918

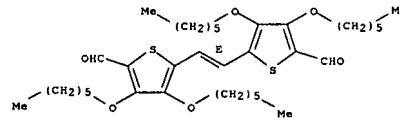
OTHER SOURCE(S): MARPAT 130:111508
GI

AB A two-photon absorbing chromophore of the formula EArE (Ar = I, II, III; R1, R2 = C8-12 alkyl; E = 2-thienyl, benzothiazol-2-yl, 4-pyridyl) are synthesized and are useful in laser-scanning confocal fluorescent microscopy. Thus fluorene was treated with BuLi and then decyl bromide and brominated to give 2,7-dibromo-9,9-didecylfluorene, which was reacted with 2-(tributylstannyl)thiophene to give 2,7-bis(2-thienyl)-9,9-didecylfluorene. A 0.0418 M solution of the above compound in THF had a 2-photon absorption coefficient 0.058 ± 10-20 cm/GW and two-photon cross-section 0.230 cm4/GW.

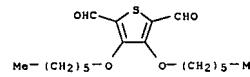
IT 197969-53-2P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineering material use); PREP (Preparation); USES (Uses)
 (preparation of sym. dyes with large two-photon absorption cross-sections)
 RN 197969-53-2 CAPLUS
 CN Benzothiazole, 2,2'-(3,3',4,4'-tetraakis(hexyloxy)-5,5'-bithiophene)-5,5'-diyl (9CI) (CA INDEX NAME)

10538995.trn

LS ANSWER 16 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



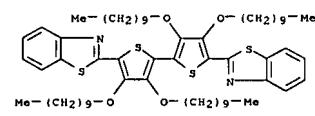
IT 211235-84-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation, cyclic voltammetry, and absorption spectra of tetrathiafulvalenes with dialkoxythiophene spacers)
 RN 211235-84-6 CAPLUS
 CN 2,5-Thiophenedicarboxaldehyde, 3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)



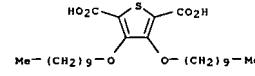
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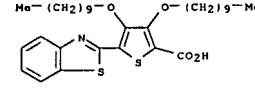
LS ANSWER 17 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



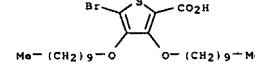
IT 143084-55-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of sym. dyes with large two-photon absorption cross-sections)
 RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)



IT 143084-56-4P 219548-41-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of sym. dyes with large two-photon absorption cross-sections)
 RN 143084-56-4 CAPLUS
 CN 2-Thiophenecarboxylic acid, 5-(2-benzothiazolyl)-3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)



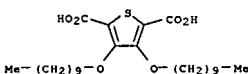
IT 219548-41-1P
 RL: SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of sym. dyes with large two-photon absorption cross-sections)
 RN 219548-41-1 CAPLUS
 CN 2-Thiophenecarboxylic acid, 5-bromo-3,4-bis(hexyloxy)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

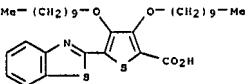
L5 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

L5 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1998:411176 CAPLUS
 DOCUMENT NUMBER: 129:96579
 TITLE: Highly active two-photon dyes: design, synthesis, and characterization toward application
 AUTHOR(S): Reinhardt, Bruce A.; Brott, Lawrence L.; Clarkson, Stephen J.; Dillard, Ann G.; Bhatt, Jayprakash C.; Kannan, Ramamurthi; Yuan, Lixiang; He, Guang S.; Prasad, Paras N.
 CORPORATE SOURCE: Polymer Branch WL/MLBP Materials Directorate, U. S. Air Force Research Laboratory, Wright-Patterson AFB, OH, 45433-7750, USA
 SOURCE: Chemistry of Materials (1998), 10(7), 1863-1874
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A series of compds. with systematically varied mol. structures which exhibit very large effective two-photon cross sections has been synthesized and characterized in solution using a nonlinear transmission technique. The general structure of these compds. can be categorized into two basic structural families: acceptor/donor/acceptor and donor/bridge/acceptor. This study attempts to determine certain mol. structure/effective two-photon absorption relationships by careful characterization and as a function of systematically varied changes in the organic structure of the dye mols. Such information can be useful in the design of more efficient two-photon dyes for imaging and power-limiting applications. The results of the study indicate that with the incorporation of certain combinations of structural elements, dyes can be synthesized which have greatly increased effective cross sections as high as $152.5 \times 10^{-48} \text{ cm}^4 \text{ s/photon mol.}$ in benzene solution at 800 nm using 8-ns pulses. This value is orders of magnitude higher than com. available organic dyes measured at the same wavelength. Although the process is thought to involve a combination of two-photon absorption and excited state absorption phenomena, the information gathered from these new families of dyes has provided an important first step in producing improved materials for use in many different two-photon technol. application.
 IT 143084-55-3P 143084-56-4P 153846-91-4P
 202831-61-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (intermediate/ preparation of highly active 2-photon dyes)
 RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)

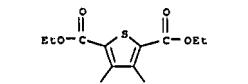


L5 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

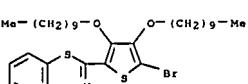
RN 143084-56-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 5-(2-benzothiazolyl)-3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



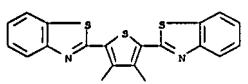
RN 153846-91-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)-, diethyl ester (9CI) (CA INDEX NAME)



RN 202831-61-6 CAPLUS
 CN Benzothiazole, 2-(5-bromo-3,4-bis(decyloxy)-2-thienyl)- (9CI) (CA INDEX NAME)



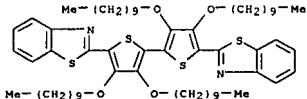
IT 129922-11-8P, 3,4-Bis(decyloxy)-2,5-bis(2-benzothiazolyl)thiophene 197969-53-2P, 3,3',4,4'-Tetrakis(decyloxy)-5,5'-bis(2-benzothiazolyl)-2,2'-bithiophene
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material uses); PREP (Preparation); USES (Uses)
 (preparation of highly active 2-photon dyes)
 RN 129922-11-8 CAPLUS
 CN Benzothiazole, 2,2'-(3,4-bis(decyloxy)-2,5-thiophenediyl)bis- (9CI) (CA INDEX NAME)



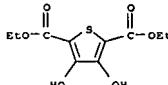
10538995.trn

L5 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 197969-53-2 CAPLUS
 CN Benzothiazole, 2,2'-(3,3',4,4'-tetrakis(decyloxy)-2,2'-bithiophene)-5,5'-dilipobis- (9CI) (CA INDEX NAME)

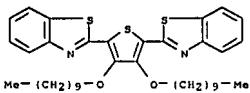


IT 1822-66-8, Diethyl 3,4-dihydroxy-2,5-thiophenedicarboxylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; preparation of highly active 2-photon dyes)
 RN 1822-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

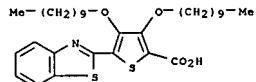
L5 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1998:33766 CAPLUS
 DOCUMENT NUMBER: 128:153818
 TITLE: The design and synthesis of new organic molecules
 with large two-photon absorption cross-sections for
 optical limiting applications
 AUTHOR(S): Reinhardt, B. A.; Brott, L. L.; Clarkson, S. J.;
 Kannan, R.; Dillard, A. G.
 CORPORATE SOURCE: U.S. Air Force Wright Laboratory, Polymer Branch,
 WL/MLSP Materials Directorate, Wright-Patterson AFB,
 OH, 45433-7750, USA
 SOURCE: Materials Research Society Symposium Proceedings
 (1997), 479 (Materials for Optical Limiting II), 3-8
 CODEN: MRSDDH; ISSN: 0272-9172
 PUBLISHER: Materials Research Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The mol. structure/nonlinear optical (NLO) property relationship is
 explored with seven recently synthesized chromophores. Two sym. compd.
 were made using electron withdrawing groups separated by an electron
 rich core
 while five asym. mols. were developed using electron donating and
 withdrawing groups coupled by a π electron bridging group. Pendant
 chains were added to some of the chromophores to improve processability.
 Their syntheses are described and their optical limiting properties
 discussed.
 IT 129922-11-8P 197969-53-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (design and preparation of organic mols. with large two-photon
 absorption
 cross-sections for optical limiting applications)
 RN 129922-11-8 CAPLUS
 CN Benzothiazole, 2,2'-(3,4-bis(decyloxy)-2,5-thiophenediyl)bis- (9CI) (CA
 INDEX NAME)



RN 197969-53-2 CAPLUS
 CN Benzothiazole, 2,2'-(3,3',4,4'-tetraakis(decyloxy)[2,2'-bithiophene]-5,5'-
 diyl)bis- (9CI) (CA INDEX NAME)

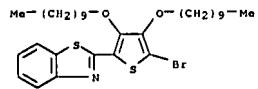
L5 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

Me-(CH₂)₉-O O-(CH₂)₉-Me
 IT 143084-55-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (design and preparation of organic mols. with large two-photon
 absorption
 cross-sections for optical limiting applications)
 RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



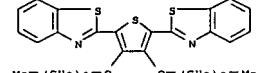
RN 202831-61-6 CAPLUS
 CN Benzothiazole, 2-(5-bromo-3,4-bis(decyloxy)-2-thienyl)- (9CI) (CA INDEX
 NAME)

L5 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



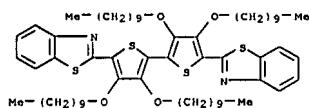
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L5 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1997:702997 CAPLUS
 DOCUMENT NUMBER: 127:332778
 TITLE: Optical power limiting in solution via two-photon
 absorption: new aromatic heterocyclic dyes with
 greatly improved performance
 AUTHOR(S): Reinhardt, Bruce A.; Brott, Lawrence L.; Clarkson,
 Stephen J.; Kannan, Ramamurthi; Dillard, Ann G.
 CORPORATE SOURCE: Polymer Branch, WL/MLSP Materials Directorate, U. S.
 Air Force Research Laboratory, Wright-Patterson AFB,
 OH, 45433-7750, USA
 SOURCE: Proceedings of SPIE-The International Society for
 Optical Engineering (1997), 3146 (Nonlinear Optical
 Liquids and Power Limiters), 2-11
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical
 Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Organic compds. which exhibit optical power limiting exclusively via a
 two-photon absorption mechanism have shown only little promise for
 providing the limiting activity necessary for the practical protection of
 eyes and sensors. Unfortunately, there have been few systematic studies
 of the mol. structure/two-photon absorption property relationships for
 orgs. documented in the literature. In order to enable the design and
 synthesis of new mols. with much larger two-photon absorption
 cross-sections and improved limiting properties, the synthetic chemist
 must have access to well defined structure/property data. In an attempt
 to fill this void, work has centered on the design and synthesis of
 several new families of aromatic heterocyclic chromophores with
 systematic
 variations in their mol. structures. Careful characterization of these
 new materials in solution has produced some well-defined
 structure/two-photon
 property relationships at 800 nm. The design and synthesis of these
 materials are discussed with special emphasis of how the flexibility of
 the synthetic scheme employed enables the incorporation of these
 chromophores into a wide variety of materials forms. The
 characterization
 of the two-photon properties of these materials and the relationship of
 these results to their optical limiting behavior in solution will also be
 reviewed.
 IT 129922-11-8P 197969-53-2P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (preparation of aromatic heterocyclic dyes with optical power
 limiting in solution
 via two-photon absorption)
 RN 129922-11-8 CAPLUS
 CN Benzothiazole, 2,2'-(3,4-bis(decyloxy)-2,5-thiophenediyl)bis- (9CI) (CA
 INDEX NAME)

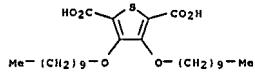


L5 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 197969-53-2 CAPLUS
 CN Benzothiazole, 2,2'-(3,3',4,4'-tetrakis(decyloxy)[2,2'-bithiophene]-5,5'-diyl)bis- (9CI) (CA INDEX NAME)

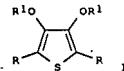


IT 143084-55-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; preparation of aromatic heterocyclic dyes with
 optical power limiting in solution via two-photon absorption)
 RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)

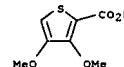


REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L5 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1996:656066 CAPLUS
 DOCUMENT NUMBER: 125:328421
 TITLE: Improved preparation of 3,4-dimethoxythiophene
 AUTHOR(S): Merz, Andreas; Rehm, Christina
 CORPORATE SOURCE: Institut Organische Chemie, Universitaet Regensburg, Regensburg, D-93040, Germany
 SOURCE: Journal fuer Praktische Chemie/Chemiker-Zeitung (1996), 338(7), 672-674
 PUBLISHER: Barth
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 125:328421
 GI



AB The title compound I (R = H, R1 = Me) was prepared starting from thiophenedicarboxylate I (R = CO2Et, R1 = H). The salt I (R = CO2Et, R1 = H) was methylated with Me2SO4 and 2 mol% crown-6 as phase transfer catalyst in toluene to give the Me ether I (R = CO2Et, R1 = Me) with 62% yield. The latter was saponified and the acid I (R = CO2H, R1 = Me) was decarboxylated by simple heating at 250° to yield the dimethoxythiophene I (R = H, R1 = Me) in 65% yield.
 IT 113589-62-1P 183430-03-7P 183430-04-8P
 183430-05-9P
 RL: BYP (Byproduct); PREP (Preparation)
 (preparation of dimethoxythiophene)
 RN 113589-62-1 CAPLUS
 CN 2-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



RN 183430-03-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3-hydroxy-4-methoxy-, 2-ethyl ester (9CI) (CA INDEX NAME)

L5 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 183430-04-8 CAPLUS
 CN 2-Thiophenedicarboxylic acid, 3,4-dimethoxy-, methyl ester (9CI) (CA INDEX NAME)

RN 183430-05-9 CAPLUS
 CN Thiophene-3-ol, 4-methoxy- (9CI) (CA INDEX NAME)

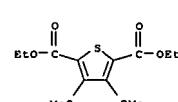
IT 1822-66-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of dimethoxythiophene)
 RN 1822-66-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)

IT 51792-34-0P, 3,4-Dimethoxythiophene 177364-92-0P
 177364-96-4P 183430-02-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of dimethoxythiophene)
 RN 51792-34-0 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

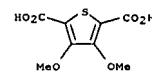
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L5 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

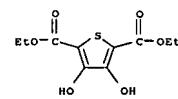
RN 177364-92-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, diethyl ester (9CI) (CA INDEX NAME)



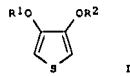
RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



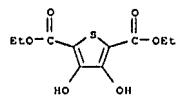
RN 183430-02-6 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester, dipotassium salt (9CI) (CA INDEX NAME)



LS ANSWER 22 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1996:260464 CAPLUS
 DOCUMENT NUMBER: 125:10524
 TITLE: A facile synthesis of 3,4-dialkoxythiophenes
 AUTHOR(S): Coffey, M.; McKellar, B. R.; Reinhardt, B. A.; Nijakowski, T.; Feld, W. A.
 CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH, 45435, USA
 SOURCE: Synthetic Communications (1996), 26(11), 2205-12
 CODEN: SYNCVA; ISSN: 0039-7911
 PUBLISHER: Dekker
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 125:10524
 GI



AB Dialkylation of di-Et 3,4-dihydroxythiophenedicarboxylate followed by ester hydrolysis and acid decarboxylation provides a general route to 3,4-dialkoxythiophenes I (R1 = R2 = Me, Bu, ClOH21, CH2Ph; R1R2 = CH2CH2, CH2CH2CH2).
 IT 1822-66-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of dialkoxythiophenes)
 RN 1822-66-8 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)



IT 38321-97-0P 143084-55-3P 153846-91-4P
 177364-92-0P 177364-93-1P 177364-95-3P
 177364-96-4P 177364-97-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of dialkoxythiophenes)
 RN 38321-97-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)

LS ANSWER 22 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

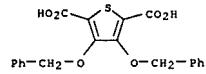
EtO-C(=O)-S-C(=O)-Et
 n-BuO OBu-n
 RN 177364-95-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)-, diethyl ester (9CI) (CA INDEX NAME)

EtO-C(=O)-S-C(=O)-Et
 Ph-CH2-O O-CH2-Ph
 RN 177364-96-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)

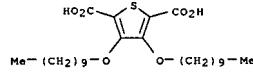
HO2C-C(=O)-S-C(=O)-CO2H
 MeO OMe
 RN 177364-97-5 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy- (9CI) (CA INDEX NAME)

HO2C-C(=O)-S-C(=O)-CO2H
 n-BuO OBu-n
 IT 51792-34-0P 126673-34-5P 156112-75-3P
 177364-99-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of dialkoxythiophenes)
 RN 51792-34-8 CAPLUS
 CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

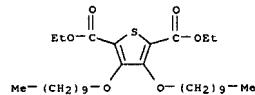
LS ANSWER 22 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



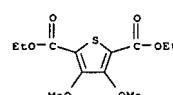
RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



RN 153846-91-4 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)-, diethyl ester (9CI) (CA INDEX NAME)



RN 177364-92-0 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-, diethyl ester (9CI) (CA INDEX NAME)

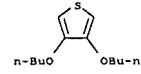


RN 177364-93-1 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dibutoxy-, diethyl ester (9CI) (CA INDEX NAME)

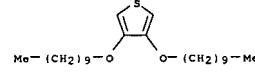
LS ANSWER 22 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



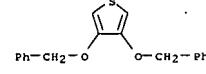
RN 126673-34-5 CAPLUS
 CN Thiophene, 3,4-dibutoxy- (9CI) (CA INDEX NAME)



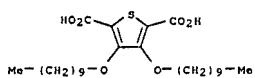
RN 156112-75-3 CAPLUS
 CN Thiophene, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



RN 177364-99-7 CAPLUS
 CN Thiophene, 3,4-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



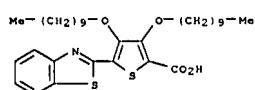
L5 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1994:606620 CAPLUS
 DOCUMENT NUMBER: 121:206620
 TITLE: Preparation of tailored length thiophene benzobisthiazole oligomers with solubilizing decyloxy pendants for third order nonlinear optical property correlations
 AUTHOR(S): Unroe, M. R.; Reinhardt, B. A.
 CORPORATE SOURCE: Wright Lab., Wright-Patterson AFB, OH, USA
 SOURCE: Report (1992), WL-TR-92-4070; Order No. AD-A259390, 23
 PP. Avail.: NTIS
 From: Gov. Rep. Announce. Index (U. S.) 1993, 93(9), Abstr. No. 325, 486
 DOCUMENT TYPE: Report
 LANGUAGE: English
 AB In an effort to better understand the relation between mol. weight and third-order nonlinear optical activity for condensation polymers, thiophene-containing benzobisthiazoles are synthesized via a trimethylsilyl polyphosphate-catalyzed condensation of a bis(o-aminothiophenol monomer and a didecyloxythiophenedicarboxylic acid. The phys. and chemical characterization of these oligomers, including mol. weight detns., are summarized. The enhancement of the bulk susceptibility and second mol. hyperpolarizability are demonstrated to increase with increasing oligomer length. Based on the data from femtosecond degenerate four-wave mixing expts., the second hyperpolarizability of the oligomers is enhanced by two-photon resonance.
 IT 143084-55-3DP, polymers with bis(o-aminothiophenols)
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 with (preparation and reaction of, with thiophene benzobisthiazole oligomers with solubilizing decyloxy pendants for third order nonlinear optical property)
 RN 143084-55-3 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



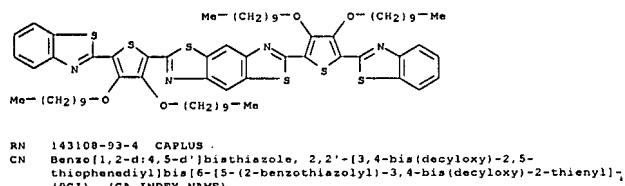
L5 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-B

— (CH₂)₉—Me
 IT 143084-56-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); (preparation and reaction of, with diaminobenzene dithiol)
 RN 143084-56-4 CAPLUS
 CN 2-Thiophenedicarboxylic acid, 5-(2-benzothiazolyl)-3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)

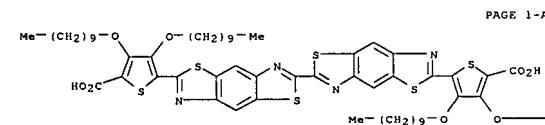


IT 143084-58-6P 143108-93-4P 143108-94-5P
 143108-95-6P
 RL: SPN (Synthetic preparation); PRP (Preparation); (preparation and third-order nonlinear optical properties of, mol. weight in relation to)
 RN 143084-58-6 CAPLUS
 CN Benzol[1,2-d:4,5-d']bisthiazole, 2,6-bis[5-(2-benzothiazolyl)-3,4-bis(decyloxy)-2-thienyl]- (9CI) (CA INDEX NAME)



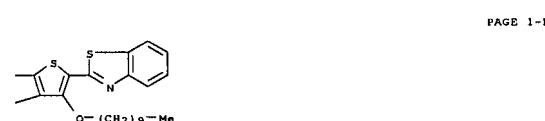
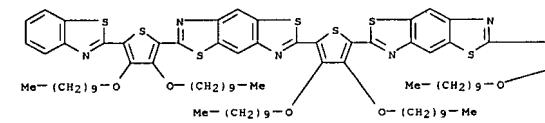
RN 143108-93-4 CAPLUS
 CN Benzol[1,2-d:4,5-d']bisthiazole, 2,2'-(3,4-bis(decyloxy)-2,5-thiophenediyl)bis[6-(5-(2-benzothiazolyl)-3,4-bis(decyloxy)-2-thienyl]-, (9CI) (CA INDEX NAME)

L5 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1992:512531 CAPLUS
 DOCUMENT NUMBER: 117:112531
 TITLE: Synthesis of substituted thiophene-benzobisthiazole oligomers for molecular weight-third order NLO property correlations
 AUTHOR(S): Unroe, Marilyn R.; Reinhardt, Bruce A.
 CORPORATE SOURCE: Polym. Branch, Wright Lab., Wright-Patterson AFB, OH, 45433-6533, USA
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1992), 1626(Nonlinear Opt. III), 450-9
 CODEN: PSISDG; ISSN: 0277-786X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB In an effort to better understand the relationship between mol. weight and 3rd-order nonlinear optical (NLO) activity for condensation polymers, a series of oligomeric thiophene-containing benzobisthiazoles are prepared by a trimethylsilyl phosphate-catalyzed condensation of a bis(o-aminothiophenol monomer and a didecyloxythiophenedicarboxylic acid. The phys. and chemical characterization of these oligomers are summarized. The enhancement of the bulk susceptibility and 2nd mol. hyperpolarizability increase with increasing oligomer length. Based on the data from femtosecond degenerate 4-wave mixing expts., the 2nd hyperpolarizability of the oligomers is enhanced by 2-photon resonance.
 IT 143084-59-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); (preparation and reaction of, with aminothiophenol)
 RN 143084-59-7 CAPLUS
 CN 2-Thiophenedicarboxylic acid, 5,5'-(2,2'-bibenzol[1,2-d:4,5-d']bisthiazole-6,6'-diyl)bis[3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



L5 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

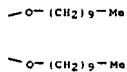
PAGE 1-A



RN 143108-94-5 CAPLUS
 CN Benzol[1,2-d:4,5-d']bisthiazole, 2,6-bis[5-(5-(2-benzothiazolyl)-3,4-bis(decyloxy)-2-thienyl)benzo[1,2-d:4,5-d']bisthiazol-2-yl]-, (9CI) (CA INDEX NAME)

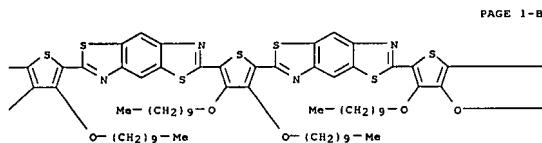
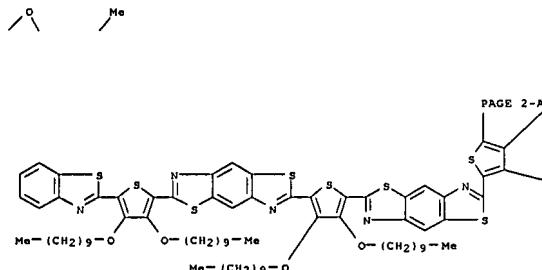
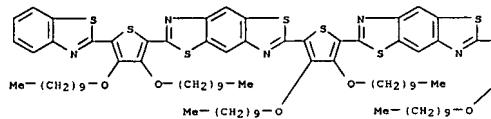


15 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
PAGE 1-B

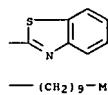


15 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 143108-95-6 CAPLUS
CN Benzo[1,2-d:4,5-d']bis(thiophene), 2,2'-(3,4-bis(decyloxy)-2,5-thiophenediyl)bis[6-(5-[6-(5-(2-benzothiophenyl)-3,4-bis(decyloxy)-2-thienyl]benzol[1,2-d:4,5-d']bis(thiophenyl)-3,4-bis(decyloxy)-2-thienyl)-9CI] (CA INDEX NAME)

PAGE 1-A



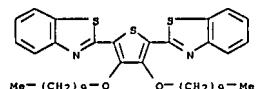
PAGE 1-C



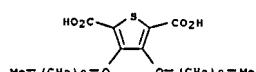
PAGE 2-B

$\text{---O}^-(\text{CH}_2)_9\text{---Me}$

15 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



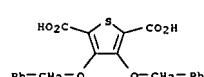
IT 143084-55-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aminothiophenol)
RN 143084-55-3 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(decyloxy)- (9CI) (CA INDEX NAME)



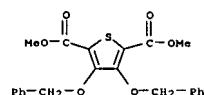
15 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:501318 CAPLUS
DOCUMENT NUMBER: 77:101318
TITLE: Preparation of thiophene esters by the Hinsberg reaction
AUTHOR(S): Chadwick, D. J.; Chambers, J.; Meakins, G. D.; Snowden, R. L.
CORPORATE SOURCE: Dyson Perrins Lab., Univ. Oxf., Oxford, UK
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1972), (16), 2079-81
CODEN: JCPRBA; ISSN: 0300-922X

DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB 3,4, Disubstituted 2-thiophene carboxylates and 2,5-thiophenedi-carboxylates were prepared by the reaction of α -diketones (biscetyl, benzil, 4,4'-dimethoxybenzil, and phenanthroquinone) with dialkyl thiocarbonates in $\text{Sm}_3\text{CO}_2\text{K}-\text{Me}_3\text{COH}$, $\text{B}_9\text{O}_4\text{---4,4'-dimethoxybenzil}$ with $(\text{EtO}_2\text{CCH}_2)_2\text{S}$ gave 5-(ethoxycarbonyl)-3,4-bis(*p*-methoxyphenyl)-2-thiophene carboxylic acid (I, $\text{R} = \text{CO}_2\text{Et}$, $\text{R}_1 = \text{Et}$) which was decarboxylated by Cu bronze at 250° giving I ($\text{R} = \text{H}$, $\text{R}_1 = \text{Et}$). Saponification of I ($\text{R} = \text{H}$, $\text{R}_1 = \text{Et}$) gave 3,4-bis(*p*-methoxyphenyl)-2-thiophene carboxylic acid (I, $\text{R} = \text{H}$, $\text{R}_1 = \text{H}$), which reacted with $\text{CH}_2:\text{CMe}_2$ in $\text{H}_2\text{SO}_4\text{-Et}_2\text{O}$ at -30° to 20° to give tert-3,4-bis(*p*-methoxyphenyl)-2-thiophene carboxylate (I, $\text{R} = \text{H}$, $\text{R}_1 = \text{CMe}_3$).
IT 38321-97-0P 38321-98-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 38321-97-0 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



RN 38321-98-1 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(phenylmethoxy)-, 2,5-dimethyl ester (CA INDEX NAME)



L5 ANSWER 26 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1967:402953 CAPLUS

DOCUMENT NUMBER: 67:2953

TITLE: Synthesis of potential anticancer agents. I.
AUTHOR(S): Gogte, V. N.; Shah, L. G.; Tilak, Bal D.; Gadekar, Kumudini N.; Sahasrabudhe, M. B.
CORPORATE SOURCE: Univ. Bombay, Bombay, India
SOURCE: Tetrahedron (1967), 23(5), 2437-41
CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 67:2953
GI For diagram(s), see printed CA Issue.
AB In view of the anticancer activity of thiophene-2,5-dicarboxylic acid

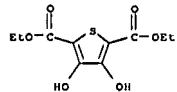
(I), a series of derivs. of I were prepared. Starting from 2,5-dichloromethylthiophene, thiophene-2,5-dicarboxaldehyde, thiophene-2,5-dimethylenethyluronium dichloride (II), and 2,5-dimercaptomethylthiophene were prepared. 3,4-Dihydroxythiophene, a thiophene isomer of catechol, was prepared by decarboxylation of 2,5-dicarboxy-3,4-dihydroxythiophene. Of the compds. reported, II proved highly active against Yoshida sarcoma in rats.

IT 14282-56-5P 14282-57-6P 14282-58-7P

RL: BPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 14282-56-5 CAPLUS

CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester, disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

RN 14282-57-6 CAPLUS

CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester (8CI) (CA INDEX NAME)

L5 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1957:34805 CAPLUS

DOCUMENT NUMBER: 51:34805

ORIGINAL REFERENCE NO.: 51:6601h-i, 6602a-d

TITLE: Reductones derived from

3,4-dihydroxy-2,5-dicarboxylic
esters of furan, thiophene, N-phenylpyrrole, and
selenophene
AUTHOR(S): V. Euler, Hans; Hasselquist, Hans
CORPORATE SOURCE: Univ. Stockholm
SOURCE: Hoppe-Seyler's Zeitschrift fuer Physiologische Chemie
 (1956), 306, 49-55
CODEN: HZPAPZ; ISSN: 0018-4888

DOCUMENT TYPE: Journal**LANGUAGE:** Unavailable**GI** For diagram(s), see printed CA Issue.

AB cf. C.A. 49, 14844a. Compds. having the general structure $\text{MeO}_2\text{CC}(\text{OH})\text{C}(\text{OH})\text{CO}_2\text{Me}$. (I) where R is O, S, Se, or Ph, were found to undergo ring cleavage under conditions ranging from solution in warm

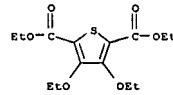
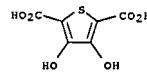
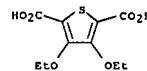
H_2O to heating with weakly alkaline solns. or treatment with Tillmans reagent to give products having the general structure $\text{MeO}_2\text{CC}(\text{RH})\text{C}(\text{OH})\text{CO}_2\text{Me}$. (II). Di-Me 3,4-dihydroxyfuran-2,5-dicarboxylate (I, R = O), λ 282.5 μm (8.15 y/ml . in H_2O) ($\log \epsilon$ 4.25), gave no reaction with AcOH -phenylhydrazine but gave a di-Ac derivative $\text{m. } 141^\circ$ and was oxidized by iodine solution to a product that gave yellowish red crystals with phenylhydrazine, $\text{m. } 130-2^\circ$. On treatment of the ester with an equivalent of alkali, a salt was obtained. The salt or the ester gave 3,4-dihydroxyfuran-2,5-dicarboxylic acid, $\text{m. } 139^\circ$ (decomposition with gas evolution), on heating in the absence of air with 2N NaOH . The effect of the ring-cleavage product, di-Me 2,3,4,5-tetrahydroxy-2,4-hexadienedioate (II, R = O), on the viscosity of a pectin solution was measured and compared to the similar effect of ascorbic acid. Di-Me

3,4-dihydroxythiophene-2,5-dicarboxylate (I, R = S), $\text{m. } 174^\circ$ (di-Ac derivative, $\text{m. } 105.5-6.5^\circ$), on ring cleavage in alkaline solution gave di-Me 2,3,4-trihydroxy-5-thiol-2,4-hexadienedioate (II, R = S). Di-Me N-phenyl-3,4-dihydroxypyrrrole-2,5-dicarboxylate (I, R = NPh), $\text{m. } 192^\circ$ (di-Ac derivative, $\text{m. } 180^\circ$), underwent ring cleavage to di-Me 2,3,4-trihydroxy-5-anilino-2,4-hexadienedioate (II, R = NPh). The di-Et derivative of di-Me 3,4-dihydroxyselenophene-2,5-dicarboxylate (I, R = Se) was prepared by saturating 4.5 g. NaOH in 10 ml. H_2O with H_2Se , adding 19 g. $\text{C}_1\text{H}_2\text{CO}_2\text{H}$, 20 g. Na_2CO_3 , and 10 ml. H_2O , then adding 22 g. concentrated

H_2SO_4 after 1 hr., heating, evaporating to dryness, extracting with MeOH , separating the salt, diluting with H_2O , and extracting with C_6H_6 . Di-Me selenodiglycolate (I, R = Se), $\text{b}1$ 129-30° was treated with 1.5 g. di-Et oxalate and 0.75 g. Na in 15 ml. MeOH . Treatment with concentrated HCl and recrystn. from EtOH gave 0.75 g. di-Me 3,4-dihydroxyselenophene-2,5-dicarboxylate, $\text{m. } 209^\circ$. Treatment with Ac_2O gave di-Me 3,4-diacetoxyfuran-2,5-dicarboxylate, $\text{m. } 141^\circ$. The selenophene ring was unstable, and cleaved in H_2O at 50° to di-Me 2,3,4-trihydroxy-5-selenyl-2,4-hexadienedioate (II, R = Se). All the ring-cleavage products displayed biol. activity.

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L5 ANSWER 26 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 14282-58-7 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy- (8CI, 9CI) (CA INDEX NAME)RN 14325-48-5 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-diethoxy- (8CI) (CA INDEX NAME)L5 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
inhibiting germination, mitosis, and the development of the Yoshida-Asciites carcinoma in rats. They decreased the viscosity of

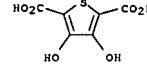
pectin and mucoid solns. and increased the permeability of cells.

IT 14282-58-7P, 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-

RL: PREP (Preparation)
(esters, and other derivs., reductone formation from)

RN 14282-58-7 CAPLUS

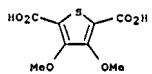
CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy- (8CI, 9CI) (CA INDEX NAME)



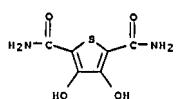
L5 ANSWER 30 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 177364-96-4 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



RN 874512-65-9 CAPLUS
CN 2,5-Thiophenedicarboxamide, 3,4-dihydroxy- (5CI) (CA INDEX NAME)



L5 ANSWER 31 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1946:6734 CAPLUS
DOCUMENT NUMBER: 40:6734
ORIGINAL REFERENCE NO.: 40:11611,1162a-b
TITLE: Some derivatives of 3,4-dioxythiophene
AUTHOR(S): Fager, Edward W.
CORPORATE SOURCE: Yale Univ.
SOURCE: Journal of the American Chemical Society (1945), 67, 2217-18

CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 40:6734
AB $\text{S}(\text{CH}_2\text{CO}_2\text{Me})_2$ (275 g.) and 267 g. $(\text{CO}_2\text{Me})_2$ in 750 cc. absolute MeOH, added dropwise to 105 g. Na in 1 l. absolute MeOH at 5° (temperature kept below 30° during the addition) and the mixture finally refluxed 1 hr. the dry Na salt heated 30 min. at 100° with 1134 g. Me_2SO_4 and, after removal of the excess Me_2SO_4 , with 750 cc. 6 N NaOH for 30 min., give 58.8% of 3,4-dimethoxy-2,5-dicarboxythiophene (I), decomp. above 250°; if the Na salt is decomposed with dilute H_2SO_4 , there results 3,4-dihydroxy-2,5-dicarboxymethoxythiophene, m. 180-80.5°. I (16.5 g.) and 2 g. Cu chromite in 50 cc. quinoline, heated in an N atmospheric

for 30 min. at 180°, give 58% of 3,4-dimethoxythiophene (II), b.p. 108-15°. II (0.8 g.) and 1.6 g. AlCl_3 in 5 cc. C_6H_6 , heated 20 min. at 60° and the product treated with a slight excess of BzCl , give the dibenzoylate of 3,4-dihydroxythiophene (III), m. 109.5-10°; III is very sensitive to O and could not be isolated. II (12.45 g.) in 200 cc. C_6H_6 at 5°, treated dropwise with 13 g. of $\text{Me}_2\text{C}(\text{CH}_2\text{CO}_2\text{C}_6\text{H}_5)_2$ and 10.15 cc. SnCl_4 in 75 cc. C_6H_6 at 5°, gives 50.5% of β -(3,4-dimethoxy-2-thienoyl)propionic acid, m. 134.5-5.5°; various attempts at reduction failed.

IT 14282-59-8, 3,4-Thiophenediol

(derivs.)

RN 14282-59-8 CAPLUS

CN 3,4-Thiophenediol (8CI, 9CI) (CA INDEX NAME)

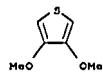


IT 51792-34-8P, Thiophene, 3,4-dimethoxy- 58416-04-9P,
2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester
177364-96-4P, 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy-
854627-25-1P, 2-Thiophenebutyric acid, 3,4-dimethoxy- γ -oxo-
RL: PREP. (Preparation)
(preparation of)

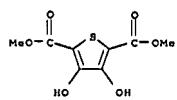
RN 51792-34-8 CAPLUS

CN Thiophene, 3,4-dimethoxy- (CA INDEX NAME)

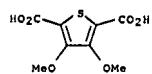
L5 ANSWER 31 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



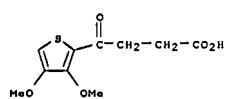
RN 58416-04-9 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, dimethyl ester (6CI, 9CI) (CA INDEX NAME)



RN 177364-96-4 CAPLUS
CN 2,5-Thiophenedicarboxylic acid, 3,4-dimethoxy- (9CI) (CA INDEX NAME)



RN 854627-25-1 CAPLUS
CN 2-Thiophenebutyric acid, 3,4-dimethoxy- γ -oxo- (4CI) (CA INDEX NAME)



L5 ANSWER 32 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1942:20528 CAPLUS

DOCUMENT NUMBER: 36:20528

ORIGINAL REFERENCE NO.: 36:13157-q-i

TITLE: Attempts toward synthesis of cantheridin. III. Condensation of ethyl 3,4-diketotetrahydro-2,5-furandicarboxylate with α -bromo esters

AUTHOR(S): Iyer, B. N.; Guha, P. C.
SOURCE: Journal of the Indian Institute of Science (1941), 23A, 159-67

CODEN: JIISAD; ISSN: 0019-4964

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

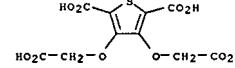
AB cf. C. A. 33, 2134.8. Condensation of the di-Na derivative of di-Et 3,4-diketotetrahydro-2,5-furandicarboxylate with $\text{CH}_2\text{BrCO}_2\text{Et}$ gives di-Et 3,4-dicarboxymethoxy-2,5-furandicarboxylate, m. 65°, which on saponification affords the salt of the tetracarboxylic acid and on acid hydrolysis (cold concentrated HCl) yields di-Et 3,4-dicarboxymethoxy-2,5-furandicarboxylate (H_2O), m. 221-5° (decomposition). The products obtained with the reaction on Et 2,5-diketotetrahydro-3,4-thiophenedicarboxylate are di-Et 3,4-dicarboxymethoxy-2,5-thiophenedicarboxylate, m. 50°, the K salt of the tetracarboxylic acid, and di-Et 3,4-dicarboxymethoxy-2,5-dithiophenedicarboxylate, m. 225-7° (decomposition).

IT 854627-74-0, 2,5-Thiophenedicarboxylic acid, 3,4-bis(carboxymethoxy)-

(derivs.)

RN 854627-74-0 CAPLUS

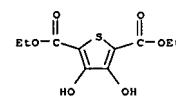
CN 2,5-Thiophenedicarboxylic acid, 3,4-bis(carboxymethoxy)- (4CI) (CA INDEX NAME)



IT 1822-66-8, 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, diethyl ester
(reaction with ethyl bromoacetate)

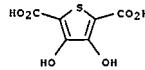
RN 1822-66-8 CAPLUS

CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, 2,5-diethyl ester (CA INDEX NAME)



LS ANSWER 33 OF 33 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1910:9681 CAPLUS
 DOCUMENT NUMBER: 4:9681
 ORIGINAL REFERENCE NO.: 4:1750d-i,1751a-b
 TITLE: Syntheses with Thiodiglycolic Ester
 AUTHOR(S): Hineberg, O.
 SOURCE: Freiburg i. B. Ber. (1910), 43, 901-6
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable
 OTHER SOURCE(S): CASREACT 4:9681
 CI For diagram(s), see printed CA Issue.
 AB Benzil and Et thiodiglycolate, in presence of MeONa, after some hrs. at the ordinary temperature, give 3,4-diphenylthiophene-2,5-dicarboxylic acid,
 acid, formula (I) below: colorless, lustrous needles from dilute alc., decomposes and evolves CO₂ above 300°. The other product of the decompose is 3,4-diphenylthiophene. Phenanthrenequinone, under similar conditions, forms phenanthroisothiophene-2,5-dicarboxylic acid (II); slender, yellow needles from alc., decompose and evolves CO₂ 270°. Phenanthroisothiophene is prepared by heating the preceding compound, light yellow plates from alc. + CHCl₃, m. 163°. When warmed with concentrated H₂SO₄ an intense, yellowish red color is produced. Me thiodiglycolate, Et oxalate and Et oxalate give dimethyl 3,4-dihydroxythiophene-2,5-dicarboxylate (III); colorless needles from alc., m. 178°. It reduces NH₃-Ag solution, and with alc. and FeCl₃ gives a blue color, changing to red on the addition of Na₂CO₃. The ester is hydrolyzed with difficulty and gives light yellow salts with the alkali metals. Et thiodiglycolate, Et oxalate and MeONa give (III) almost exclusively, but with EtONa diethyl 3,4-dihydroxythiophene-2,5-dicarboxylate is produced; colorless needles, m. 134°. It resembles (III) closely in general properties. 2-Carbethoxy-3-hydroxy-4-methylthiophene-5-carboxylic acid (IV), is obtained from Et thiodiglycolate, Et pyruvate and MeONa; colorless needles from dilute alc., m. 233°. Boiling, dilute NaOH hydrolyzes it to 3-hydroxy-4-methylthiophene-5-carboxylic acid (V); long, hair-like needles from H₂O, m. 184°. Its constitution is supposed to be shown by the fact that it gives a pale red color with FeCl₃. Tetrahydrodihydroxyacenaphtheneisothiophenedicarboxylic acid (VI), is prepared from acenaphthenequinone, Et thiodiglycolate and MeONa; small, colorless needles from alc., decomposes and evolves CO₂ and H₂O 250°. Its solution in H₂O decreases after repeated recrystn. from alc.
 IT 14282-58-7, 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-
 (esters)
 RN 14282-58-7 CAPLUS
 CN 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy- (8CI, 9CI) (CA INDEX NAME)

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